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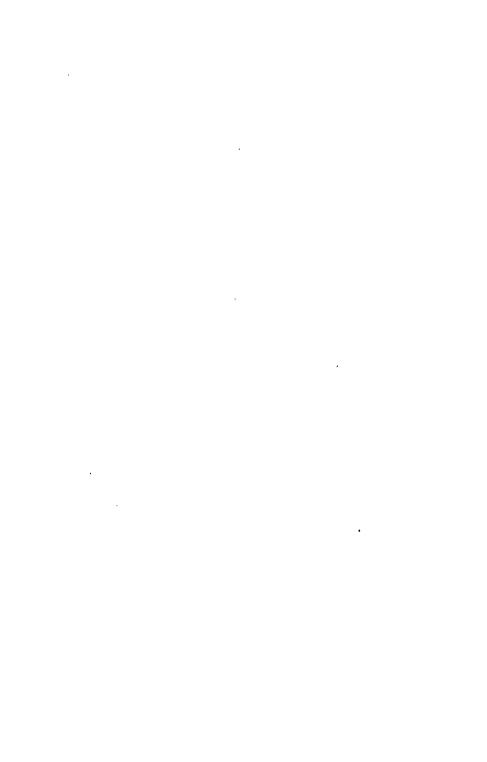
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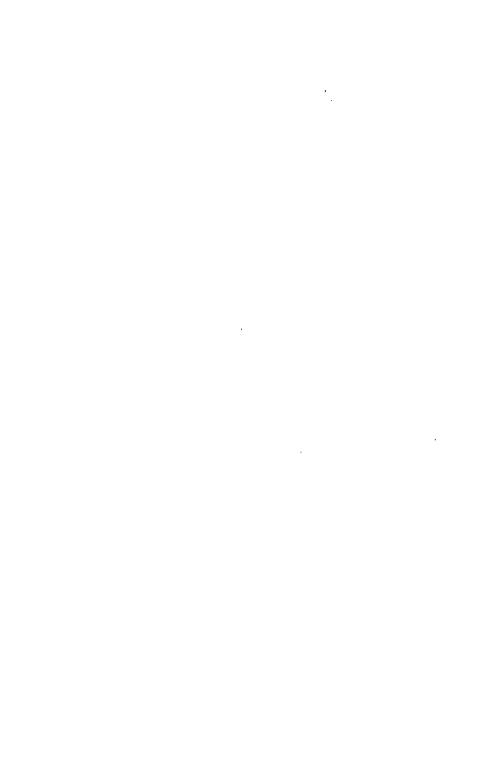
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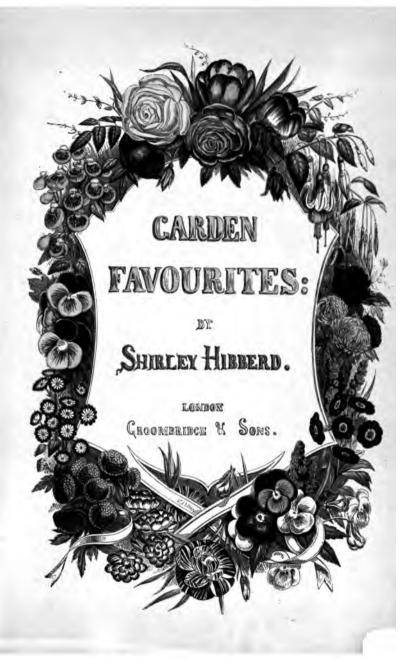


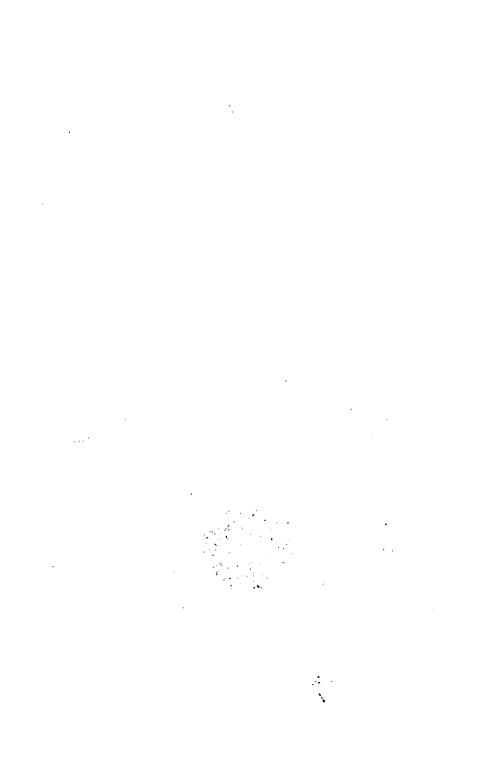




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GARDEN

FAVOURITES;

THEIR

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

WITH LISTS OF CHOICE VARIETIES.

BY SHIRLEY HIBBERD,

Author of "Brambles and Bay Leaves," "Rustic Adornments for Homes of Taste," etc.



GROOMBRIDGE AND SONS, 5, PATERNOSTER ROW.

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PREFACE.

THE completion of a volume of "Garden Favourites and Exhibition Flowers," calls for but few words by way of preface. It was projected under a conviction that there had long existed a want for such a book, and that it would only be necessary to make it worthy of the place it ought to occupy, to assure for it a decided success. It is a pleasure to acknowledge that the success anticipated has been fully realized, and that "Garden Favourites" has long since become a favourite with the readers of horticultural literature. It would be the merest mock humility for an author to profess himself unconscious of the excellence of his work, because unless a man considers his book in some way worthy of publication, his duty is to keep it to himself; and when the publication of a serial is extended over a period of twelve months, a steady increase of its circulation: is a fair guarantee that he has not miscalculated his capabilities. But it is also due to the subscribers, and indeed to the public at large, no less than to my own sense of integrity, that I should here acknowledge that I am sensible of many defects, which the publication of another edition will enable me to remove.

The treatises being distinct in themselves, have been written so that any one may be read independently of the others, and hence some unavoidable repetitions occur. This will be found to be especially the case in regard to the composts iv preface.

recommended for the several flowers treated of, and perhaps also in regard to the several modes of propagating.

In the management of mixed collections, few cultivators give such special attention to any one subject, as to make its culture an object separate and distinct from others of its class. and hence some amount of generalization is necessary. as the instructions are intended to enable the cultivator to attain the highest possible success in the treatment of any given flower included in this work, the consideration of its habit, constitution, and requirements, had of necessity to be conducted in a manner as much as possible independent of all others. The experience gained in the special culture of a favourite flower, according to the principles here laid down, will, however, readily afford the key to the necessary treatment of others similarly constituted; and hence the grouping of plans and processes, and the association of practices applicable in the treatment of subjects other than those under immediate consideration, will take place in the mind of the cultivator. for after all that may be said as to the management of this or that plant, practice enables us to proceed successfully, with very few deviations from a uniform system, with plants that differ considerably, both as to physiological and floral charac-Such differences as do exist, give the index for teristics. differences of treatment, and to bring any one of our floral pets to perfection, whether for exhibition or otherwise, demands some amount of special attention. I have here endeavoured to simplify the methods generally adopted to that end.

So much of my life having been devoted to flower culture, the task of writing these treatises seemed, at starting, to be an easy one. I have found it far otherwise. To have produced a mere compilation, would have been as simple as it would have been unsatisfactory. There are enough of compilations to show that men who have scarcely got so far as to turn a plant out of a pot without breaking it to pieces, may yet undertake to teach the more refined of the departments of

PREFACE.

horticulture. But to produce an original work, based on practical experience, and intended to serve as a faithful guide to the beginner, and even as an adviser to the adept. I found to be not altogether free from difficulties, and the department which has occasioned me the most anxiety, is that devoted to the selection of varieties under the several subjects treated of. The making up of these lists has cost me much more labour than would be supposed by readers not thoroughly cognizant of the hazardous nature of the task, for while it was necessary to include, in every case, as many new flowers as could be conscientiously recommended, it was also necessary to guard against the introduction of varieties, which, in spite of the praises lavished on them by those interested in the sale of mere novelties, might prove altogether unworthy of the amateur's attention. When a variety has stood the test of time, we may deal with it boldly, but in the first or even second season of a flower, there is much risk incurred either in its purchase or recommendation, for spite of the highest promise, it may fail altogether to realize the expectations raised in its favour. Looking at the lists as they stand, I must say I see little that need be expunged or amended; and though many useful varieties are omitted, simply because to include all would have been next to impossible, the purchaser who may need a guide in selecting stock, may choose from these lists with the most perfect safety; for there is scarcely a flower entered for the excellence of which I cannot, from personal knowledge. vouch. To the beginner these lists will be of great service as guides to the formation of collections, and I have endeavoured to include as many varieties of colour and marking under the several heads, as a limited selection would admit of. To those who possess good collections, many of those named in the lists may be found useful as valuable additions; and of the newest varieties-truthfulness to the descriptions given of them, and probable permanence of character, have been anxiously thought of in selecting and arranging them.

Vi PREFACE.

As to the getting up of the work, I must here acknowledge how much I am indebted to the proprietors, who have spared no expense to meet my wishes in every possible way. The plates are, considering the price of the work, admirable examples of colour-printing, and as they are portraits taken from the life, or copied from authentic originals, they may be relied upon as faithful to the letter.

In conclusion, I beg to tender my thanks to those professional and private growers who have assisted me by loans of drawings, and permission to copy them, for the embellishment of the work, and in suggestions and advices of a practical nature. I am much indebted to Mr. Turner, of Slough; Messrs. Henderson, of St. John's Wood; Mr. Holland, of Middleton; Mr. Salter, of Hammersmith; Mr. Cutbush, of Highgate; and Mr. Tysoe, of Wallingford. The late Mr. Lawrence, of Hampton, who for many years stood in the front rank among growers of the Tulip, very kindly aided me with some valuable suggestions when the treatise on that flower was preparing for the press; and if it is pleasant to have the assistance of men of the highest eminence in their several departments, for the simple asking, it is still more pleasant to acknowledge it with thankfulness.

To the many readers who have accompanied me during the past fourteen months, I here offer a cordial farewell, trusting that we may some day meet again on the old ground of mutual love and enthusiasm, for the favourites of the greenhouse and the garden.

CONTENTS.

| | | | | | | | | | | | | | | PAGE. |
|----|-------------------|------|------|-----|-----|------|----|-----|----|---|---|---|---|-------|
| , | ↓ RANUNCUL | US | • | • | | • | | | | • | • | | | 8 |
| 2 | JTULIP . | • | | • | | | • | • | | | | | | . 19 |
| , | i HYACINTH | | | | | | | | | | | | | 49 |
| | J CALCEOLAR | RIA | | | | | | | • | | | | | . 71 |
| 2 | GERANIUM | | | | | | | | | | | | | 89 |
| Ĺ | - ROSE | | | | | | • | | | | • | | | . 121 |
| Ή. | DAHLIA | | | | | | | | | | | | | 185 |
| | CHRYSANT | HEM | UM | | | | | | | | | | | . 215 |
| - | CARNATION | , PI | сот | EE, | AN | D PI | NK | | • | | | | | 245 |
| ţ | ✓ AURICULA, | POI | LYAN | TH | US, | AND | PR | JMU | LA | | | | | . 288 |
| | √ FUCHSIA | | | | | | | • | | | | | | 818 |
| , | PANSY . | | | | | | | | • | • | | | | . 829 |
| r | PHLOX . | | | | | • | | | | • | | | | 840 |
| | · VERBENA | | | • | | | | • | | • | • | | | . 841 |
| u | ~ PETUNIA | • | • | | | | | | | • | | • | • | 861 |
| | CONTRDADIA | | | | | | | | | | | | | 980 |

. . . .





Prince Albert.

EXHIBITION FLOWERS.

THE

TULIP:

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HISTORY, PROPERTIES, CULTIVATION, PROPAGATION, AND GENERAL MANAGEMENT IN ALL SEASONS.

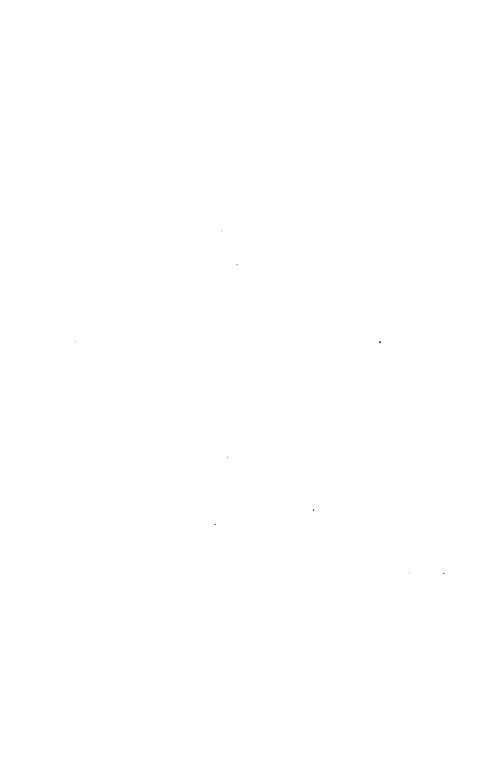
BY SHIRLEY HIBBERD,

Author of "Rustic Adornments for Homes of Taste," etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON: GROOMBRIDGE AND SONS, PATERNOSTER ROW.



THE TULIP.

CHAPTER I.

"Near the cot

The reed fence rises round some favourite spot; Where rich Carnations, Pinks with purple eyes, Proud Hyacinths, the least some Florist's prise, Tulips tall stemm'd, and pounc'd Auriculas rise."

CRARRE.

BOTANICAL AND HISTORICAL NOTES.

THE Tulip is the oldest and most renowned of the glorious family of florists' flowers. It has a name in history; it has been associated with many social and political changes, and for two hundred years has sustained a name and fame glorious to remember. But it is young still, spite of its age, and the wild excitement of scenes in which it has played the principal part. It is young and beautiful, a pet with every heart that is capable of delicate emotions, and deserves for ever to be the pride of the florist, as it for ever will—the most perfect representative of beauty as represented in colour. Poets delight to sing of rainbows, and peacocks' plumes, and the thousand hues of flame and flood as seen in sunsets, and storms, and forests fading in autumnal brown, but here is a combination of all the images, and an embodiment of all the tints of snow-flakes, rainbows, silver, gold, and fire that ever were seen or heard of by living men. If Floriculture has of late years so much increased the number and

variety of first-class flowers, that the Tulip is now and then forgotten amid the press of novelties, it nevertheless re-asserts itself with every spring, and before all competitors bears away the palm of victory. We may smile or even weep at the extravagant follies of fashion that are unveiled to us in the history of the Tulip, and yet no one with a spark of genuine floral enthusiasm ever visited a fine collection when in bloom without being more or less bitten by a Tulip-mania! Who shall say which of the senses has the greatest power over the mind and emotions?

In the Linnean system the Tulip belongs to the sixth class—Hexandria—and the first order of that class—Monogynia—the flower having six stamens of equal length, and one stigma. In the natural system it is a member of the extensive order Tulipaceæ, in which, besides the Tulip, is comprised many garden and greenhouse favourites—the noble Yucca, the Frittilaria, Calochortus, Lilium, Gloriosa, Asphodeleæ, and the dog violet. All these are plants that have a regular perianth of six segments, with six stamens, and a capsule of three cells, opening by as many valves. In the Tulip the flowers are erect, and produced singly; in the orange lily they are in umbels; and in the lovely Yucca they are in racemes and drooping; but in their classification the indicative features are much the same in both the artificial and the natural system.

The history of Tulip-culture and Tulip-madness would furnish a mass of curious and instructive material for a very voluminous work. It is a history full of interest, not less for the lover of the flower than for the observer of human life and its strange follies and eccentricities. Here is a flower which, in its original wild form, is a pretty but humble and innocent thing, yet it possesses the elements requisite for turning the heads of half Europe, as it really did between the years 1634 and 1637; and those elements are to be found in its capability of sporting into huge forms and splendid hues under the skilful treatment of the enthusiastic florist, who never dreams that so good a work will have so sad an ending.

At the beginning of the seventeenth century, certain flowers were specially petted by florists, and the changes wrought in them led to the establishment of a new branch of trade, whereof

the head-quarters were the Netherlands. The phlegmatic Dutchman, never at a loss for a means to turn an honest penny, felt his blood warm up in the admiration of some curious sports of nature, and a rage for double flowers opened the way to a wide appreciation of the artistic value of flower-sports of all kinds, and especially of those which occurred among the favourites of the garden. Not that double flowers, or even such as differ in form and tint from the species producing them, are invariably the result of human skill, for sports occur amongst wildings to such an extent that our botanical works are burdened with the names of plants designated as species, which from time to time are found to be mere varieties; and a large number of the kinds which swell out catalogues are the offsprings of hybrids that have had no help of florist to marry the parents of them. Hence Florimania never grew out of any special freak of nature, but simply from some few of the dame's freaks being noticed, admired, and thence converted into marketable commodities to appease, or rather stimulate. the universal appetite for curiosities and novelties. The Dutch were the first to encourage a taste for what are now known as florists' flowers, and in Holland the passion attained to fever heat during the first half of the seventeenth century, the Tulip being the chief object of competition, rivalry, and speculation.

Gesner bears the historical honour of first introducing the Tulip to the notice of cultivators: he it was who first figured and described the flower correctly, and the opinion generally obtains that Tulina Gesneriana, so named from him, is the parent of the several splendid varieties that claim so much anxious care from the florist. He himself says that he first saw the flower in the beginning of April, 1559, in the garden of the learned and ingenious counsellor John Henry Herwart, at Augsberg. In less than twenty years it began to be known generally throughout Europe, and was regarded as an importation from Persia, by way of Constantinople. Though this opinion has been very generally adopted by botanists, it should not be forgotten that the British Flora contains a wild Tulip, which is occasionally met with on chalky soils in southern districts, and this Tulipa sylvestris may, during two centuries of Tulip-culture, have contributed somewhat towards the hybridizing of various forms of

T. Gesneriana, the historical parent of our infinite superb varieties. The industrious Gerarde could not forget so rare a gem as the Tulip had already become in his day, for in 1597, he writes that his friend, "Master James Garrett, a curious searcher of simples and learned Apothecarie in London, had undertaken to finde out, if it were possible, the infinite sorts by diligent sowing of their seeds, and by planting those of his own propagation, and by others received from his friends beyond the seas, for the space of twentie yeares, not yet being able to attain to the end of his travaile, for that each newe yeere bringeth forthe new plantes of sundrie colours not before seene, all which, to describe particularly, were to roll Sisyphus' stone, or number the sands."

As soon as a knowledge of this bright Proteus had made its way into Holland, the Dutch merchants, who were always fond of flowers, began to trade in the bulbs, procuring their supplies from Constantinople, and it is generally believed that the first that were planted in England were sent from Vienna about the end of the sixteenth century. Hakluyt says, "they were procured thither a little before from Constantinople by an excellent man, Carolus Clusius." They were later still in becoming known in France; but in 1611 we have a record of their culture in the garden of the celebrated Peiresc in Provence.

As the Dutch trade rose, persons of wealth and leisure began to be excited on the subject of Tulips; splendid collections were formed, new varieties produced in considerable number, and an extensive demand created for certain kinds that had acquired fame for their fine properties. The rage spread; prince and peasant, scholar and clown, were all soon entangled in the meshes of a panic, and, as in the case of the railway bubble of 1845, the number of sales exceeded the number of Tulips to be sold; in fact, they became objects of morbid speculation, and certain kinds were bartered and re-bartered without passing through the hands, or ever being seen or known except by name, by the vendors. Some of the scenes preserved to us of Tulipomania, are as ludicrous as others are saddening; indeed it must ever be a vexation to a true lover of the flower to reflect how many rogues and fools have made their names historical through it. Among other records of the high value set upon certain famous kinds, Hirschfeldt states

that in the register of the city of Alkmaar, in 1637, is an entry of a sale of Tulips, for the benefit of the Orphan Hospital, when one hundred and twenty Tulips, with their off-sets, were publicly sold for nine thousand florins, and one of those, the Viceroy, brought four thousand two hundred and three florins. As a florin was then the equivalent of an English bushel of wheat, the amount in modern English money would be £1576 4s. Od. for a single tulip!

Beckmann, in the "History of Inventions," states on Dutch authority, that four hundred perits in weight (less than a grain) of the bulb of a Tulip, named Admiral Leiften, cost four thousand four hundred florins-£1650 1s. 6d. modern English money -and two hundred perits of another, named Semper Augustus. realized two thousand florins. It once happened that there were only two roots of this sort to be had,—the one at Amsterdam, and the other at Haarlem. For one of them four thousand six hundred florins, together with a new carriage, two grey horses. and a complete harness, were offered, and for the other twelve acres of land. "Those," says Beckmann, "who had not ready money, promised their moveable and immoveable goods, house and lands, cattle, and clothes. The trade, in which sixty thousand florins were sometimes cleared in one month, was followed not only by mercantile people, but also by the first noblemen, citizens of every description, mechanics, seamen, farmers, turf-diggers, footmen. chimney-sweeps, maid-servants, and old-clothes women. At first every one won, and no one lost. Some of the poorest people gained in a few months houses, coaches, and horses, and figured away like the first characters of the land. In every town some tavern was selected, which served as a change, where high and low traded in flowers, and confirmed their bargains with the most sumptuous entertainments. They formed laws for themselves, and had notaries and clerks."

This is merely the gambling part of the story—the love of flowers had nothing to do with it—the traffickers knew nothing of the sorts on which such high prices were set; and had the trade suddenly ceased, but few of them would have known how to preserve or propagate the kinds which had attained to such high but temporary values. The grave, big-headed, otherwise well-balanced Dutchmen had gone completely mad. Sums were paid for roots

which were never received—that were never wanted, except to sell again and again, and at each sale the commodity remained in nubibus. A nobleman would meet a sweep, give him two or three thousand florins for a few Tulips; the nobleman would then sell them at a higher price to a speculating farmer, and he again to another, though not one of the parties saw, or wished to see, the roots on which the bargains were made. Indeed, for several seasons there were more roots sold than were to be found in all the gardens of Holland. Their names changed hands again and again, till a whole herd of "stags" stood between the first vendor and the last purchaser, and when Semper Augustus was no longer to be had, which twice happened, there was no kind in greater request, or which was bought and sold more frequently. "In three years more than ten million florins were expended in this trade alone in one town in Holland."

When the bubble burst fearful was the result; the last buyers were the victims, and the sorts that had cost a fortune for each single bulb, fell in value suddenly to nothing. Thousands were ruined, Tulips were cursed, and for a time owners of famous varieties failed to find purchasers. The Dutch government interfered, and it was enacted that every seller should produce and offer his bulbs to the purchaser, and in the event of the latter refusing to receive them, the vendor had it in his power to retain the roots, and sue for damages.

When this morbid excitement had had its day, the Tulip was once more restored to its true place as a splendid production of floricultural art, worthy of healthy admiration, patient culture, and a legitimate price. At the beginning of the eighteenth century the flower was in its highest fame as an object of fair trade and cultural rivalry, and in England the passion for Tulips was at its climax, but without the fever of panic. In 1817, says Neill, in his "Historical Tour," the general price of choice bulbs varied from three to ten guilders, (a guilder being equal to 1s. 8d.;) a few kinds were valued at from ten to twenty guilders, and the most select, new, and rare varieties seldom fetched more than from twenty to fifty guilders. Amongst the most famous of the Tulips of 1817, were the Universal Conqueror, Pompe Funèbre, and Charbonnier Noir, with yellow grounds; Louis XVI. and Toilette

Superieure, with white grounds, and the price of them was one hundred guilders (£8 2s. 6d.) a bulb.

Later prices contrast strangely even with these, for in the Gardener's Chronicle of 1846, is a record of the sale of Mr. Thackeray's collection, when many really fine show-flowers averaged not more than half-a-crown a bulb; yet there were still sorts considered worthy of high prices. In 1848, Polyphemus, Shakspere, Sir H. Pottinger, The Queen, Lady Sale, and Grace Darling were the leading fashionable kinds, and the two latter frequently realized from three to four guineas a bulb. Polyphemus, a Bizarre first broken by Mr. Lawrence, realized from twelve to twenty guineas a bulb for several years after it first became known; and Mr. Goldham some years ago refused £100 for Louis XVI. It is seldom that any Tulip now-a-days realizes more than twenty guineas, which is the price this season of "Charles Williams," a Bizarre of Mr. Lawrence's.

These commercial changes have little or nothing to do with the merits of the Tulip as a floral favourite. It is a pet still, and will ever remain so, simply because it is a "thing of beauty." Florists will vie with each other in the tasteful and honourable enterprise of raising new sorts of intrinsic merit; and if Mr. Groom, the late king of the Tulip world, is no longer in the ranks of growers and exhibitors, there are such men as Tyso, Lawrence, Turner, and Dr. Hardy still devoted to it, and thousands of cultivators, rich and poor, continue to find in the Tulip a source of the most pleasurable recreation and healthy excitement, sufficient to sustain the prestige of this glorious flower, and ensure the preservation and improvement of its character for succeeding generations of admirers.

CHAPTER II.

"Who thou, O Tulip! thy gay painted breast In all the colours of the sun has drest? Well could I call thee, in thy gaudy pride, The Queen of Flowers."

KLEIST.

VARIETIES OF THE TULIP, AND PROPERTIES OF SHOW FLOWERS.

Now and then we hear remarks made by growers of flowers, as we also meet with vague hints in the pages of horticultural works, which prove that the opinion is pretty general that many kinds of plants are becoming exhausted through excessive culture. Such remarks are not boldly made, so that the subject can be brought to discussion: they are but the shadowings of a shadowy faith, that would soon take a substantial form, if encouraged by a few striking facts. We really know so little of the capabilities of vegetation, that in the face of its apparently infinite productiveness, any idea of ultimate exhaustion must, on a moment's reflection, be seen to be absurd. The idea arises out of that tendency of the mind to impose limits and boundaries to whatever comes under its consideration, not from any positive tendency to cessation hitherto observed in the tribes of cultivated plants. We know that excessive culture of a certain kind will at last bring the strain to a stand still, or at least render it so tender or so infertile as to serve us as a threat: but this is not the result of the exhaustibility of the race, but a special weakness resulting from that certain kind of culture to which the plants have been subjected. The judicious florist will never forget that nature has at least something to do with his work; it is not all art, and hence in his hybridizing experiments, he will not forget strength while searching for beauty. So happily has this been effected in the improvement of the Tulip,

that, spite of the high floral condition of the plant, it is as robust as ever, and the Protean power of change, which is the very soul of floriculture, is in no whit exhausted, nor does it appear likely to be exhausted as long as the culture of the flower continues to be scientifically practised.

That culture has affected extraordinary results in the Tulip, let the wild flower, *Tulipa sylvestris*, or its congener, *T. gesneriana*, the reputed parent of all our splendid varieties, testify. Here is the Wild Tulip of our own limestone soils, a pretty, quiet, unassuming thing. When examined it is found to consist of a cup of



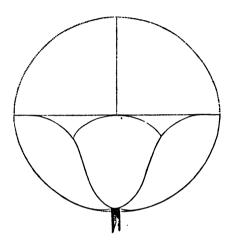




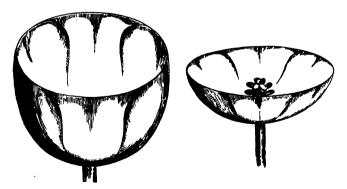
T. Gesneriana.

six segments, all coloured, and an observer unacquainted with botany would consider it destitute of a calyx. But three of those divisions are the sepals of the calyx, the other three the petals of the corolla; the whole of the flower being coloured is a main element in the attractiveness of the Tulip. This wild flower is yellow, its divisions are pointed and open, with but a very poor approximation to a cup. In the wild Levantine Tulip a similar open and spreading form is seen, and if we contrast with either of these a model outline of an Exhibition Tulip, we see exactly what floriculture has in this instance accomplished, or must accomplish ere the standard of perfection be attained.

This diagram represents the standard of form and dimensions which the florist is to keep in view in every effort to improve the Tulip; the nearer the flower in its circumference approaches to



a circle, the more worthy is it to take a high place. It must have six petals turning up goblet fashion from the base, and the goblet



Extreme depth of cup.

Extreme shallowness of cup.

itself may be either shallow or deep, provided it conforms to a definite symmetry of outline, and, generally speaking, the deeper it is the better. If we conceive a well-turned ball to be hollowed out after one-third of its circumference has been sliced off, we shall have just the figure of a well-formed Tulip; it will still be well formed if it represents the half of the same hollow ball, but less than one-third would be too shallow, and more than two-thirds too deep. It must be neither a tazza, nor a funnel, the outline must be regular almost to a mathematical nicety, and it must appear so firm on the edge as to be fit to drink the dew from off the brightest May morning that was ever rivalled in tintings by this artistic flower. The shape of the cup, when fully expanded, should be a semi-oblate spheroid; the stalk inserted at the pole, and the pole a little depressed.

In the colouring there is of course greater latitude; and though among unnamed Tulips very splendid tintings are to be found, none are worthy of a place in high-class collections unless coloured according to the recognised laws of properties. There are four distinct classes, and many subdivisions of each of these. The classes are first, Biblæmens; second, Bizarres; third, Roses; and fourth, Selfs.

Biblæmens are such as have a white ground variegated with violet, brown, or purple.

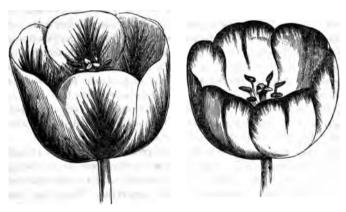
Bizarres have yellow grounds variegated with purple, scarlet, rose, or dark velvet.

Roses have white grounds with rose tintings of various shades, from blush to deep crimson.

Selfs are of one clear uniform colour, the yellow and white are the most esteemed, the purple or red are usually valued for giving new tints to hybrids, and hence are called breeders.

In each of the first three classes the variegations must be in accordance with rule. The distribution of the tints must not be in any random or blotching way—mere colour not being the object of the grower, or the point rewarded by judges. The markings have three distinct forms, though two only are usually assigned to them. The cuts here given will explain the three kinds of markings; that called the Flame is a distinct set of lines on the centre of each petal: it must be regular in itself, and uniform, on

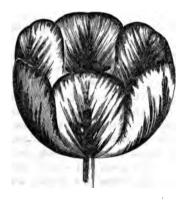
the several petals of which the flower is composed, with no lateral breakings or spots, and not the least adventitious stain of any other colour than those which give character to the flower. This



Flame.

Feather.

is a kind much prized in the southern counties, particularly near London, though but little sought by growers elsewhere—it is the flame without the feather.



Flame and Feather.

The Feather is a disposition of tints around the edge of each petal; when well defined it has the appearance of a sharp edging, resembling the feather part of a quill. This is the feather without the flame.

The third kind is a combination of the previous two, namely, Flame and Feather. In this case the points of the flame should meet the feather, at the same time preserving a sufficiency of the ground colour between the flame to display it to advantage: the flame must occupy the centre of each leaf, and the feather extend around the margin, the sharper and more distinct in tone the better.

The following is Hogg's criterion of a fine variegated late Tulip:-"The stem should be strong, elastic, and erect, and about thirty inches above the surface of the bed. The flower should be large, and composed of six petals: these should proceed a little horizontally at first, and then turn upwards, forming almost a perfect cup, with a round bottom, rather widest at the top. The three exterior petals should be rather larger than the three interior ones, and broader at their base; all the petals should have perfectly entire edges, free from notch or serrature; the top of each should be broad and well rounded: the ground colour of the flower, at the bottom of the cup, should be clear white or vellow; and the various rich-coloured stripes, which are the principal ornament of a fine Tulip, should be regular, bold. and distinct on the margin, and terminate in fine broken points. elegantly feathered or pencilled. The centre of each leaf or petal should contain one or more bold blotches or stripes, intermixed with small portions of the original or breeder colour, abruptly broken into many irregular obtuse points. Some florists are of opinion that the central stripes or blotches do not contribute to the beauty and elegance of the Tulip, unless confined to a narrow strine exactly down the centre, and that they should be perfectly free from any remains of the original or breeder colour. It is certain that such appear very beautiful and delicate, especially when they have a regular narrow feathering at the edge: but the greatest connoisseurs in this flower unanimously agree that it denotes superior merit when the Tulip abounds with rich colouring, distributed in a distinct and regular manner throughout the flower, except in the bottom of the cup, which should be a clear bright white or yellow, free from stain or tinge, in order to constitute a perfect flower."

After all, it must in candour be admitted that there is no fixed and reliable standard by which to determine the properties of a first-class Tulip, either as regards form or colouring. What with double naming, the confusion arising from the multiplicity of worthless sorts, and the diversity of opinions that exist, even among celebrated growers, both as to properties and culture, an entire revolution must yet be effected, and some distinct rules generally agreed upon, for the guidance of all who take a sincere interest in this flower, ere it can be freed from the quackery that has for centuries injuriously influenced its value and character, and that even to this day, is the great impediment to its universal acceptance as one of the grandest of true florists' flowers.

THE TULIP. 33

CHAPTER III.

"Bright Tulips, we do know
Ye had your coming hither;
And fading time doth show
That ye must quickly wither."

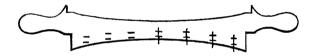
HERRICK.

THE CULTIVATION OF THE TULIP AS A SHOW-FLOWER.

THE treatment of the Tulip, when grown as a fancy flower, is very different from that which it receives when used as an ordinary garden ornament. In the hands of the fancier its management is regulated by strict rules, often, it is true, of an empirical nature, yet strikingly illustrative of the value set upon it, and the devotion of patient ingenuity to its culture. There are some differences in the plans adopted; as in various districts there are also many and great differences in the values attached to certain kinds, dependant of course on the taste and fashion of the locality; but the necessary details of culture, cleared of all personal or local peculiarities, are as follows:—

The Tulip bed must be on well-drained soil, sheltered from north and east winds, but not in too close proximity to trees or walls, which tend to draw the plants. Exposure to sun is essential, for the Tulip will not produce its colours fairly unless previous to blooming it has some share of sunshine. The bed may be of any length, but a breadth of four feet six inches is that usually preferred for convenience of culture. When the bed has been marked out, the soil must be removed to a depth of two feet. and a properly prepared soil must take its place. The Tulip thrives best in a compost of well-decayed turfy loam, sharp sand, and very rotten stable manure, and the compost should be prepared nine or even twelve months before being used. The Tulip grower should secure a yearly supply of turf from an old pasture, one in which the roots of the grass form a thick matting of fibres. This must be stacked for twelve months, and between every layer there should be a stratum of hazelly loam. When well rotted by frequent turning, it should have about an eighth part of its bulk of very rotten manure, with another eighth of soot and sharp sand mingled with it, and this compost, sweet, well pulverized, and thoroughly incorporated, is the best that can be used for the general soil of the bed. I can safely say that soot is a most valuable ingredient in the compost for a Tulip bed. I have myself used larger quantities than I would venture to recommend, not because it is attended with any risk, but because some beginner might be led to overdo it. In the absence of a proper compost, let it be borne in mind that the soil should be loamy and rich, with a moderate admixture of sand and decayed vegetable matter, and these qualities may be secured by the use of the manure from an old cucumber bed, well worked up with leaf mould, loam, and sand, the latter in liberal quantity.

The bed should be made early in autumn, so that it may be well settled before planting time; and as it will probably sink an



inch or two, the surface must be made up before planting with a mixture of light mould and sand. When the time arrives for planting, it will be necessary to give the bed a convex surface; this may be accomplished with a rake, but the levelling board invented by Mr. Groom, and here figured, will be found most convenient, as by its use the surface can be rounded off to a nicety, and the planting conducted with minute accuracy. The centre of the bed should be three or four inches higher than the sides; this is not merely for appearance sake, but for rapidly carrying off excessive rains.

Early planting is very essential to success. The first week in November is the time generally observed; about London, Lord Mayor's Day is very generally adopted, and for those who enjoy relief from city duties on that day, the planting of Tulips is a much more remunerative recreation than the spectacle of that stupid pageant. A dry day should be chosen for planting, the bulbs

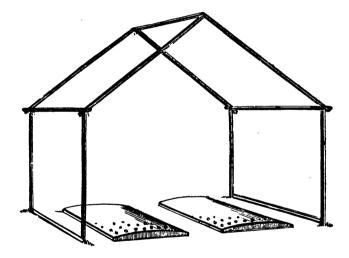
should be arranged ready, and the bed marked off with great regularity. Many use a line and a dibble, with a peg across it to denote the proper depth, but the wooden marker is far preferable. The bulbs are to be planted six inches apart, and four inches deep, and in a bed of four feet six inches; this gives eight Tulips in a line across, and a six-inch space at each margin of the bed. When the holes are made, a little sand should be dropped into each; the bulb should have the brown skin removed from the



Section of Tulip bed on the Lancashire plan.

crown, but with every care not to inflict the slightest wound, and when inserted the hole should be filled up with sand. Many growers plant the bulbs only three or three and a half inches deep, but such shallow planting is attended with risk by exposing the plant to the frost early in the year. With the exception of the ranunculus and the anemone, no flower root ought to be planted less than four inches deep, and with large bulbs, such as hyacinths, lilies, narcissi, etc., six inches is a proper depth.

London growers of the Tulip have shaken off many of the empirical rules that governed the last generation of fanciers; when such rules are entirely got rid of, the Tulip will be grown in accordance with the laws of horticulture, and it will take its place as a first-class exhibition flower: at present it is in a certain sense unknown. The empiricism, which is so detrimental to the extension of Tulip culture, may be very aptly illustrated by a note on the Lancashire method. The preceding figure represents a vertical section of a Tulip bed on the Lancashire plan. It is made up of five layers or stratums of various composts, each of them prepared



with the accuracy and minutæ of a formula for the laboratory. The bottom of the bed, a, consists of a mixture of three-years-old sifted horse-dung and fine loam in equal proportions; the stratum above it, b, is made up of two-fifths fine loam, one-fifth sand, and two-fifths manure. Stratum, c, three-fifths fine loam, one-fifth sand, and one-fifth very rotten manure. The next one, d, is of fine loam, and one-fifth sand; and the top layer, in which the bulbs are planted, of sandy loam alone. The bulbs are planted in pure sand.

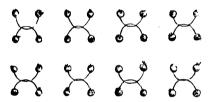
Now, with the exception of the bottom stratum, which may

have a liberal share of manure to preserve moisture, and afford the extreme fibres of the plants a little stimulus, the whole of the other four layers might as well be mixed up into one compost, and even then it might be improved by an admixture of a fourth part rotted turf or leaf mould, for the Tulip, like most other choice flowers, will reach its highest perfection if grown in a light, sweet, and nutritious soil, in which there is a fair admixture of sand, vegetable mould, and manure, without apothecary weights or exact arithmetical proportions.

For protection against heavy rains and the blaze of the sunlight, when the plants are in bloom, an awning is absolutely necessary. There are many plans available for this purpose, from the simple tunnel of hazel rods to the permanent framework of sufficient elevation to admit spectators within it, as within a pavilion. If the collection is sufficiently extensive, it will be found to conduce to a pleasurable exhibition of them, as well as their convenient culture, to arrange two beds side by side, with a well made path between them, and along each of the outer sides. A light but strong timber erection can then be thrown over these beds, and fitted with rollers and cords, for the lowering or raising of the screens, as may be desirable. This plan affords plenty of room, and a sufficient circulation of air to preserve the health of the plants, which are apt to be slightly weakened if kept for any length of time under cover.

Though the Tulip is a hardy plant, it will not bear exposure to severe frosts. A slight frost acting on the surface of the bed, is beneficial, but a frost that would penetrate to the root, would do incalculable harm. Hence shelter is necessary during severe weather: canvass or matting, or a thick stratum of fern or litter will give the protection required. The worst effect of frost is that which occurs when late in the season the just-emerging foliage gets frozen, and then quickly thawed by the sun. Where the grower is not vigilant this frequently happens, for frosts come suddenly towards the mornings at the season when bulbs are pushing through the surface, and being followed by powerful sunshine, the consequences are often calamitous. Much of the evil, however, may be obviated by watering the frozen foliage with water, but one or two degrees warmer than freezing point, and

shading off the sun for at least three hours afterwards. Otherwise fair exposure to the weather is good for the Tulip; there is nothing gained by inducing tenderness of habit—sunshine, rain, and even a cold wind that gives a moderate check, are all good and in consonance with the natural habit of the plant. During March and April, occasional waterings with manure water will be beneficial; it should be weak at first, and the strength gradually increased until the bloom buds appear, when its strength must decrease, and as the blooms open it must be discontinued. Strong manures and exciting compounds are always injurious, though the Tulip will stand as much stimulating as most plants. When once they are in bloom, no ray of sunlight, nor shower, nor gust of wind should visit them, or, in a few short hours, the work of a season may be reduced to a wreck.



Support should be given betimes, and the greatest possible neatness must be observed. If the bulbs are planted eight across the bed, they may be arranged in fours for the supports; and each double row of sixteen Tulips may be supported with four rods, each rod being placed in the centre of the four, and a piece of leaden wire turned round the rod, and reaching to each of the stems.

The best effect in the arrangement of Tulips is to be attained by arranging them as follows:—

| Byb. | Biz. | Rose. | |
|-------|-------|-------|--|
| Rose. | Byb. | Biz. | |
| Biz. | Rose. | Byb. | |

CHAPTER IV.

PROPAGATION AND IMPROVEMENT OF THE TULIP.

In the ordinary routine of Tulip culture, there is nothing that differs materially from the culture of many other bulbs; but when we talk of raising seedlings and breaking selfs, the twelve labours of Hercules seem as nothing in comparison, and even the patience of Job becomes common-place. Tulips produce offsets sufficiently freely to ensure progeny of any sorts that may be in request; and this mode of propagation is attended with no special anxieties or risks. At taking-up time the grower will see how far his most highly-prized sorts have increased by offsets, but it will be better not to remove them then. The bulbs should be stored away carefully, as the slightest mistake may lead to a general confusion in future operations. At the beginning of September the whole stock should be revised, and every offset removed; the offsets being arranged with as much care as to sorts as you bestow upon the bulbs themselves.

When once removed the offsets should be planted as quickly as possible. The second week in September is the latest period that any such young bulbs should remain out of ground, for they have to store up pulp for future blooming, and from their incipient state they lose strength by any continuance of exposure to the air.

Plant them in precisely the same compost as the mature bulbs, but bear in mind that if the latter will bear strong manure water, or a rather large proportion of manurial matters in the soil, these young bulbs will not stand it without injury; they must have a sweet porous soil, in which the manure is in a very rotten and pulverized condition. Plant them two and a half inches deep, in rows six inches apart. Let the beds be well raised in the centre, and under and above each bulb put a little finely sifted compost. In all other respects treat them as mature bulbs, and wait patiently the result of your labours.

There are not many amateurs who really lay themselves out for raising seedling Tulips; there are few indeed who have the courage to look forward into futurity, and be content to live for years on hope alone. Though the Tulip is so essentially an amateur's flower, professional growers are those who have added the greatest number of best sorts to the lists. To raise and save seed is not difficult; any one may do it who can plant the bulbs, and tend them till they flower.

To hybridize is not difficult either; indeed, very easy with the Tulip, for its organs of fructification are plainly visible, easily got at, and require but moderate dexterity to manipulate them. Therefore as to saving seed there is no difficulty, nor is there any in raising bulbs from it, but whoever does so must wait; in raising new Tulips patience is the grand desideratum; there is no royal road to success.

Tulip seed is usually sown in September or October, but in my judgment it should be sown as soon as gathered. Pans or boxes are the best receptacles, but the young plants must not have any great depth of soil, or they are apt to run away into fibres instead of forming stout and promising bulbs. Sandy loam without manure is the best soil; and the only treatment necessary is one that insures moderate moisture, free exposure to the morning sun, and shelter from frost in winter, and from drought and excessive sunlight in summer. At the expiration of the second season they should be treated as mature bulbs, that is, in July they should be taken up and stored away, and in the November following planted out in the usual way. They flower first of one colour, and the grand thing from that moment is to get them "to break."

"Breaking" is a technical term applied to the curious process by which a self-coloured Tulip becomes variegated. All seedlings are selfs when they first blow, and it is uncertain when the self will break, or even if it ever will. There is one thing certain, we must wait, it cannot be commanded; many are the schemes that have been proposed to hasten this interesting process, on which depends so many anxious hopes, and sometimes immense sources of profit. Some have starved them one year, and surfeited them with gross manures the next; others have exposed them to successive changes of climate, and others again have gone on growing and waiting, giving fair treatment and regular attention, and all have fared pretty much alike.

On poor soils selfs will break in from one to twenty years; seven years is the reputed standard, but there is never any certainty as to when the self will break, or even if it will break at all. In these cases the averages pay, whether the object be gratification or profit, or a blending of both. All have a chance, and what has been done can be done again; therefore every lover of the Tulip may be assured that he has his chance with the rest of one day or other making a hit.

Mr. Hogg suggests that the fecundation of an unbroken, by the pollen of a broken tulip, previously removing the stamens from the flower of the former, before the anthers have arrived at maturity, may hasten the process somewhat. And Mr. Groom recommends change of climate, growing them for a season at a distance of twenty miles or more away, and then restoring them to their native site again. But these are only suggestions, nothing more; though still the suggestions of men ripe in judgment and experience.

CHAPTER V.

SEASONAL MANAGEMENT.

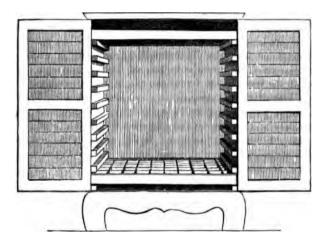
The Tulip is so hardy, and is so much benefitted by a moderate exposure, except when in bloom, that ordinary attention is all that it requires. Sufficient has been said in the chapter on culture to render any further remarks on shading and watering unnecessary. Stagnant moisture is very injurious, and hence a cold wet retentive soil does not suit well for Tulip culture; neither does a poor arid one in which moisture cannot be retained. Where such soils occur, their defects must be remedied by such means as will readily suggest themselves, in the one case drainage, in the other the formation of a lower stratum of manure, and in both the preparation of a compost, as already described, will be necessary.

As the plants progress in spring, they must be guarded against those morning frosts which frequently make such havoc among our unprotected pets; and as soon as they show for bloom, let them have support against wind, and shelter from excessive rain. When the blooms open they demand all your care, and then the reward, how great! Proper shading at that time not only ensures the blooms against the wasting effects of the sun, but greatly lengthens the period of flowering.

In taking up the bulbs let there be no injudicious haste. If left too long they may sprout again; if taken up too soon they may not have ripened, and may decay during winter. The second error is the one most likely to be committed by the inexperienced, for there is a tendency in us all to get rid of that which appears no longer useful for the present, and if the foliage is hastily cut down, and the bulbs lifted, they may never recover the injury. When the foliage has done its work will be indicated by its beginning to decay. Up to that time the leaves are engaged in the elaboration of sap for the future use of the bulb, and if the foliage is removed before this has taken place, the bulbs will be wanting in plumpness and vigour.

If seed is not wanted, the seed-vessels should be removed as

fast as the flowers get shabby, and the sun admitted to the bed. The usual signal for cutting down the flower stems is when the flowers cease to close at sunset, or when the edges of the petals exhibit signs of withering. As soon as the foliage begins to show unmistakeable signs of decay the bulbs may be lifted. A cloudy day is best for the operation, because of the exhausting effect of sunshine on the bulbs; they should be at once sheltered from sun and rain, in an airy place, and left to dry till the end of August or beginning of September, when the offsets may be removed, and the bulbs stored away, each in the compartment assigned to it, number and name corresponding, with as much accuracy as the roll-call of a military company.



The annexed figure represents a case for bulbs, invented by Mr. Groom. It will be found a very convenient mode of storing bulbs, and of preventing mistakes either at taking up or planting. Each bulb should be laid in pure sand, previously well washed and dried; if it contains the least saline matter, it may attract moisture, and cause the decay of the bulbs. It contains spaces for eight drawers, in which the sorts may be arranged in accordance with the planting of the rows in the beds.

CHAPTER VI.

THE TULIP AS A BORDER FLOWER.

As a rule the purchasers of florists' flowers are quite a different class from either those who "collect" plants, as illustrative of the science of Botany, or those who delight in garden scenes, and to whom bedding plants and shrubs are most important. A large majority of the cultivators of florists' flowers confine their attentions to a few favourites; they indulge in but few garden scenes or general effects-frequently indeed they give their whole attention to one flower, and a bed or collection of varieties of that one plant is their only aim. This is rather to be regretted, for the attainment of proficiency in any one department of gardening is in every way consonant with the development of gardening in extenso, and the possessor of a superb collection of Tulips, auriculas, or any other of the many fancy favourites, might easily combine with his chosen pursuit the production of a garden scene, wherein his own pets might play their part in contributing to the general gaiety and variety of the borders and parterres. For effects of this kind the Tulip is eminently suitable: it is essentially a bedder, and though its reign is brief, it comes just at the season when a blaze of colour is not otherwise easily attainable out of doors; and when judiciously grouped and mixed with the miscellaneous garden stock, the effect is magnificent. Gentlemen's gardeners are sadly behindhand as to the decorative uses of bulbs generally, and I may say of the whole series of florists' flowers. Where at any country residence do we ever see such a thing as a bed of Tulips all in bloom together, producing an effect that for brilliance of colour cannot be surpassed in the vegetable kingdom? Where among the many fine private establishments is a stage of auriculas or carnations to be found? do not the artizan and the tradesman monopolize them, and find in their culture a healthful and joyous recreation, while his lordship, with a thousand-fold their means, is doomed to remain undelighted by them. Bulbs especially fall into this neglect, and perhaps the absence of families from the

country-seat at the time when they come into bloom, may to a great extent account for it.

Certainly the Tulip might have a little more attention from those who delight in a gay flower-garden, but who make no profession of floricultural enthusiasm. For the drawing-room and conservatory we have the Duc Van Tholl, very dwarf, delightfully gay, and which are the very best for forcing in pots, the easiest of things to force, and the heralds in-doors of the opening of the floral season. For variety there are many very showy sorts of early Tulips, of which the following are the best, and all are adapted for pots or the open borders:—Beauté sans Pareille, rosy purple; Couleur Cramoisi, crimson; Grand Lilas, lilac; Pottebak. ker. white: Semiramis, blue: Marie de Medicis, rose and vellow: Rosa Mundi, blush: Sunbeam, Vermilion, and Waterloo, scarlet: and Yellow Prince, fine yellow. Mr. Groom used to have upwards of one hundred and fifty sorts of early dwarf Tulips, single and double, in bloom in the second week in April at the Nurserv at Walworth, and any private grower might have a similar splendid show at very trifling expense, for these are low-priced sorts. and their time of blooming affords opportunity to succeed them with bedding plants for the remainder of the season.

In mixed borders early and late Tulips are of great value, either in clumps of one colour or in mixed masses, backed by shrubby evergreens: and as the bulbs come out of the ground, some late blooming bedders can always be found to take their place to advantage. The amateur who delights in mixed borders, would do well to remember how much gaiety may be imparted to them by a good selection of various bulbs. Tulips, hyacinths, snowdrops, crocuses, narcissi, jonquils, irises-English and Spanish. for autumn planting; and for planting early in spring, lilies, ranunculuses, anemones, tuberoses, gladioluses, amaryllises, tigridias, and cyclamen—a brilliant assemblage; to which a good selection of Tulips, early and late, at from ten to twenty shillings a hundred. or even less for many good garden sorts, would serve as the keynote to lead off the whole. What can be more beautiful than the effect of masses of double Tulips in the borders, their brilliant colours and many varieties forming the gayest dashes of colour in any way obtainable from the regions of Flora?

In the "Town Garden" I called the attention of townsmen to the excellence of the Tulip as a city flower, either for pots or the open borders. It is one of its many excellences that it comes in good condition in the most smoky of atmospheres, and if expensive sorts are avoided, a very beautiful show may be made at a very trifling outlay; the mere vegetable refuse of the garden, of which there is plenty at the fall of the year, worked up with soot and salt, making a good compost for the purpose, if covered with a depth of ten or twelve inches of sandy loam. The bulbs should be planted early in October—the bed being made up a few weeks before-six inches apart every way. If the top soil is removed to a depth of four inches, and a layer of sand put down, the bulbs may be regularly arranged, each one just stuck in its place, and then covered with fine sandy soil, and the surface raked to a neat convex outline. They will flower stronger and better in every way if watered twice a week with manure water, the strength of which should be gradually increased till the blooms begin to open, when it must be discontinued. Other points of culture must be regulated by the instructions already given as to its management as a show-flower. For general gardening purposes, mixtures of bulbs are the best, and it should be remembered that the commonest sorts, if the bulbs are sound and from good stock, are as gaudy in colouring as many that are valued at enormous rates; indeed, it is not merely the colour which determines the value of a Tulip, but colour is all that ordinary persons require, and that can be had in extravagant abundance from Tulips of the commonest kinds. Even the charge against the Tulip that it has no scent may some day be set aside, for we lately hear that in Guernsey a race of scented Tulips has been produced, and is likely soon to be generally known, so that no future poet may sing as one has already sung-

"Yet no delicious scent it yields
To cheer the garden and the fields;
Vainly in gaudy colours drest,
"T is rather gazed on than caressed."

Though already it is "caressed" by hundreds of patient enthusiasts, who labour to obtain for it a general embrace at the hands of every lover of the bright sisterhood of exhibition flowers.

A LIST OF FIRST-CLASS TULIPS.

SELECTED FROM THE STOCK OF MR. LAWRENCE, OF HAMPTON, MIDDLESEX.

BIZARRES.

Achilles.

Apelles.

Captain Cator.

Charles Brown.

Charles Crook, L.

Charles Williams, L.

Clovis.

Coriolanus, L.

Cymbeline, L.

Damascus, L.

Delaforce's King.

Dickson's Duke of Devonshire.

Dr. Horner.

Enterprize.

Everard.

Fabius, L.

Feu de Joie, L.

Fortunius, (Goldham's.)

General Williams, L.

George Hayward, L.

Gloriosa, (Franklin's.)

Glory of Abingdon.

Hamlet, (Brown's.)

Iago, L.

John Lyde, L.

King of Tulips.

Lord Collingwood.

Lord John Russell.

Lyndhurst, L.

Marcellus, L.

Memnon.

Nero, (Holme's.)

Pompe Funebre.

Prince Arthur, (Hardy's.)

Prince of Wales, (Groom's.)

Queen of Hearts.

Queen Zenobia.

Rubini, (Groom's.)

Selim, L.

Sir George Cathcart, L.

Sir James Watt.

Smith's Victory.

Sphynx, (Sander's.)

Strong's King.

Outong a King.

Strong's Queen.

St. Neotts.

Telemachus.

Ulysses, (Brown's.)

Vivid. ex.

Will Scarlett.

BYBLOMENS.

Ariel, (Holme's.)

Britannia, (Aust's.)

Brown's Magnificent.

Byzantium, L.

Calypso, (Headley's.)

Charles Kemble.

David.

Democrat, (Dixon's.)

Don Pedro.

Duchess of Sutherland, (Walker's.)

Duke of Richmond, (Goldham's.)

Earl of Haddington, (Groom's.)

Eliza.

Elthiron, L.

Emma, (Goldham's.)

Fair Rosamond, L.

Fanny Kemble. Gem, (Abbott's.) George the Fourth, (Holme's.) Glory, (Franklin's.) Goldham's Mary Ann. John Kemble. Lady Sale, L. Lord Byron, (Goldham's.) Lord Clarendon, L. Lord Dufferin. Lord John Russell. Louisa Lawrence, L. Louis the Sixteenth. Lysander Noir. Maid of Athens. Marshal Blucher, (Goldham's.) Mrs. Lymbury. Napoleon, (Goldham's.) Norah Criena. Pandora. Parmigiano. Prince Charles. Prince, (Goldham's.) Queen Charlotte. Queen, (Delaforce's.) Queen of the North. Rainbow, (Goldham's.) Rutley's Queen. Saint Cecilia. Salvator Rosa, (Brown's.) Sancta Sophia. Sir Henry Pottinger, (Slater's.) Sir John Woolmore, L. Sir Robert Peel. Starling, (Lyde's.) Thalia. Victory, (Franklin's.) Victoria Regina. Violet Imperial. Violet Quarto, alias V. Alexander.

Violet Souvereign.

ROSES. Anastatia. Arlette. Bacchus, ex. Bijou, (Scarnell's.) Bion. Brulante Ecletante, (Bretal's.) Camuse de Craix. Clarissima, L. Cymba, L. Duchess of Kent. Duchess of Sutherland, (Groom's,) Dutch Ponceau. Enchantress, (Sander's.) Fairy, (Holme's.) Fanny Cherito. Flora Mc'Donald. Jeffery's Elizabeth. Kate Conner. King of Saxony. La Bell Nannette. Lady Denbigh, L. Lady Jane, L. Lady Wildair. Lord Derby. Lucetta, L. Madge Wildfire. Magnificent, (Haward's.) Maid of Falaise. Mary Lamb. Midland Beauty. Mountain Sylph. Naomi. Ponceau Brilliant. Prince William the Fourth. Queen Anne. Queen Eleanor. Rose Juliana. Rose Lac.

Sarah, L.

Vicar of Radford.

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EXHIBITION FLOWERS.

THE

HYACINTH:

ITS

HISTORY, PROPERTIES, CULTIVATION, PROPAGATION, AND GENERAL MANAGEMENT IN ALL SEASONS.

BY SHIRLEY HIBBERD,

Author of "Rustic Adornments for Homes of Taste," etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON: GROOMBRIDGE AND SONS, PATERNOSTER ROW.

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THE HYACINTH.

CHAPTER I.

HYACINTH LORE.

In this strange spring of ours, in which the pole nods to the equator, and cutting east blasts do battle with western zephyrs, giving us sleet and storm to-day, and a genial blue sky to-morrow. there is no pleasure so acceptable during such halcyon days as we have, as that experienced during a stroll along wood sides and through ancient lanes, well banked by spring flowers. Long ago the pretty primrose adorned such spots with its hearty greenness and its lemon-tinted flowers; the pretty celandine that Wordsworth loved is in haste to blossom, and in damp, warm hollows is already spangled with its golden stars; the meadows are promising daffodils, the coppices are growing rich in wild flowers, many a buttercup is a-stir in readiness to splash the country with gold-dust, violets are in haste to join the troop, and the pretty squill is about to make the grey woods glorious. In the mossy nooks of Epping Forest, in Coombe Wood, in every unploughed shrubby spot in the west and south of England, these flowers make a brave garland to welcome in the spring. Northwards they come a little later, but they do come, and not a single human heart with liberty to bless it, need pine long for the odours and colours of the thrice welcome spring. In some favoured spots the squills and violets literally carpet the ground with their healthy green and right royal blue; and if we want wild Hyacinths, we need but to wander forth and gather them, or bestow the benediction of a copper coin on some weary child who has filled her basket miles away, and now plods the city streets to sell them ere they wither.

This wild Hyacinth, known to botanists as Scilla natans, (the

nodding squill,) and Hyacinthus non-scriptus, (non-inscribed,) has been by the poets confounded with another flower, the harebell, and to such an extent that an uninitiated reader must get sorely puzzled as to the meaning of many a bold strophe and pretty comparison. Homer describes Ulysses as having Hyacinthine locks; Sir Philip Sydney, in his "Arcadia," gives Queen Helen Jacinth hair, with "a rope of fair pearls," which "did play fast and loose with each other, mutually giving and receiving richness;" and Milton, in describing Adam, adopts a similar poetic figure:—

"His fair large front and eye sublime declar'd Absolute rule, and Hyacinthine locks Round from his parted forelock manly hung Clustering, but not beneath his shoulders broad."

But the most distinct example of the use of this favourite image is that where Collins, in speaking of some young Greeks who fought for liberty, applies it in a more descriptive way—

"———Locks divinely spreading
Like vernal Hyacinth of sullen hue,
At once the breath of fear and virtue shedding."

Referring to the vernal squill—the true wild Hyacinth of Britain—we perceive at once the force and meaning of this favourite designation of curling locks as "Hyacinthine," for the nodding squill, with its gracefully arched stem, and prettily recurved petals, is quite suggestive of classical locks falling on the shoulders, and then gently curling at their extremities.

But there is another plant known as the wild Hyacinth, which is not a Hyacinth at all; it is the harebell. Strictly speaking, the vernal squill, (S. natans,) is a distinct species from the wild Hyacinth, (H. non-scriptus,) but they are both members of the order Asphodeleæ, are very much alike, and may here be considered as identical. These are often described as harebells, but the latter flower is no Hyacinth at all; it is a campanula, and abounds on dry banks in open lanes, and in exposed spots on barren and sandy soils all over the country. While the squill delights in shade, this glories in full exposure to the light, and to call it a Hyacinth would be not only incorrect in a botanical sense, but destructive of the distinct uses of each by the poets. Yet many eminent English poets have written in ignorance of this distinction; Charlotte Smith, referring in truth to the squill, says—

"In the lone copse, or shady dell, Wild clustered knots of harebells blow."

which is an evident mistake; Hyacinths, not harebells, being characteristic of the "lone copse," while the harebell is a flower of the open slopes, and blooms two months later in the year. Shakspere made no such mistakes, he was too accurate an observer of



Nodding Squill.

Harebell.

natural history details, and it is the true harebell of the hedgerows that he speaks of in those fresh and picturesque lines:—

"With fairest flowers, Whilst summer lasts, and I live here, Fidele, I'll sweeten thy sad grave; thou shalt not lack The flower that's like thy face, pale primrose; nor The azured harebell like thy veins.

There is another confusion as to the classic history of the Hyacinth, in the many versions which exist of the story of the youth whose name the flower bears. In one version Hyacinth is beloved by Phœbus, but Zephyrus also yearned for his affection, and determined that he should die rather than her rival should displace her. Hyacinth, in the joy of his young strength, was flinging the quoit, and Zephyrus turned the orb aside, and smote the youth

that he died, but from his blood sprang up a flower to perpetuate his name. Spenser adopts this version in the "Fairy Queen,"—

> "And all about grew every sort of flowre, To which sad lovers were transformed of yore; Fresh Hyacinthus, Phœbus paramoure And dearest love."

Another account relates that the quoit flung by Phœbus rebounded from a stone as Hyacinthus stooped to pick it up, and from the blood which flowed from the wound sprang up the classic flower. Thus Phœbus came to be regarded as the cause of Hyacinth's death, and in honour of the victim the Laconians held an annual feast, in which they exhibited their disapprobation of Phœbus, by refraining from singing hymns in his praise. The dedication of the Hyacinth to Phœbus is thus alluded to by Virgil, in the third Pastoral:—

"Me Phœbus loves; for he my muse inspires; And in her songs, the warmth he gives, requires. For him the god of shepherds and their sheep, My blushing Hyacinths and my bays I keep."

The question then arises, what was the Hyacinth of the ancients? and here it is confounded with quite a different flower, which in fact is no Hyacinth at all. The Hyacinth of antiquity gave the image of curling locks, which the Oriental poets used as freely as the Greeks; but it is also described as bearing traces of its tragic origin, for which we look in vain in either the wild squill or the Hyacinth of the Levant. Virgil describes it as of a bright red, and it also bore the marks of the Greek explanation of woe-AI AI, fitly enough as representative of its origin. Martyn went into the question minutely, and came to the conclusion that the Martagon or Turk's-cap lily was the "Hyacinth" of the classic poets, for its colour is red, its petals turn over like curling locks, and it bears some black marks which may, by stretching the imagination a little, be taken to represent the Greek explanation of grief. It is certain that the Hyacinth of modern botany is not the flower to which the Greek poets gave the name of their pet youth, which was a

"Sanguine flower inscribed with woe,"

and hence the botanical name of the wood jacinthe—Hyacinthus non-scriptus.

CHAPTER II.

"CHILD of the spring, thou charming flower, No longer in confinement lie; Arise to light, thy form discover, Rival the azure of the sky."

BOTANICAL AND HISTORICAL NOTES.

The Wood Hyacinth, of which I have said so much, is not the parent of the lovely flowers that are now coming into their full glory out of doors, and which in-doors have kept the windows gay since Christmas. This most domestic of the whole race of florists' flowers is called *Hyacinthus orientale*; it is closely allied to the squills and starch grape Hyacinths of English botany, but excels them in its adaptability to culture and improvement, and its magnificent variety of colours.

In the Linnean system all the Hyacinths are members of the sixth class, Hexandria, and the first order, Monogynia, having six stamens and one pistil. In the natural system it is a member of the order Asphodeleæ, of which the asphodel is the type; but the order is variously disposed of by modern botanists, for Lindley sometimes combines it with Liliaceæ, and Sir W. J. Hooker extends the limits of the order, so as to include from Tulipaceæ the yucca and the aloe. Suffice it that the distinguishing botanical marks of the Hyacinth are a tunicated bulb, in which the several tunics may be separated from each other, as in the onion. The leaves are ligulate, the stems hollow, the flowers in upright racemes, regular and bell-shaped; the perianth is divided into six segments, with one stamen to each, and the fruit is a three-celled capsule, containing many seeds.

The florists' Hyacinth is abundant in a wild state all over the Levant; when it first became a florists' flower, and a member of the English household, it is now impossible to say, but it is certain that it has been known in Holland and England three hundred years. The Dutch have long enjoyed prestige as Hyacinth growers, and the chief trade is still in their hands; their soil suiting it to perfection, and their patience being equal to the demands of the flower. Besides these advantages they can undersell our growers,

and hence command the general market, so that our chief supply of this universal favourite of the home is from Holland, whence, during the autumn, immense quantities are exported to all parts of the world.

Mr. Knight, who travelled in the bulb district in 1830, saw more than a hundred acres of Hyacinths in bloom between Levden and Haarlem; and some of these bloomestries had been established for upwards of a century. At first, only single Hyacinths were cultivated, but about the middle of last century attention was paid to double flowers; and some of the earliest of these varieties brought the high price of one thousand florins, or one hundred pounds, per bulb. As the art of cultivation improved, so rose the mania to possess rare varieties, and as much as two hundred pounds has been known to be given for a single root. The passion for this, as well as for many of our older favourites. has long since declined; other exotic novelties have taken their place; and it is now rarely that we hear of more than eight or ten pounds being given for the finest Hyacinth. The ordinary price for good bulbs is indeed seldom beyond eight or ten shillings; and what are called common mixtures may be had, as imported, for two or three pounds per hundred.

There are now about two thousand varieties of this charming flower, varying in colours from the purest white to the brightest tints of pink, rose, yellow, blue, and rich maroon and purple, all delightfully fragrant, and at every stage of their growth so interesting, that the humblest home can scarcely do without them, or the noblest mansion find a more appropriate ornament. It has long been a part of our domestic furniture, a true fireside favourite, which even people who think least about flowers, generally gladly admit and cherish as a friend.

CHAPTER III.

OUT-DOOR CULTURE.

It is often said that the Hyacinth cannot be grown in this country for two successive seasons with success; hence the annual

importations of immense quantities to keep collections to their wonted strength, and hence also the faith of amateurs in newlyimported bulbs. To a certain extent, it is true, the Dutch do beat us, but our climate and soil are not to be blamed for failures, but our want of skill. Empiricism has done similar mischief to the Hyacinth that it has done for the tulip, the ranunculus, the anemone, and the auricula. These come to perfection or go to ruin in exact accordance with their treatment; and we only need to adopt a practice based on reason to preserve the Hyacinth for almost any number of years. We are told by writers, and we see the practice followed by many growers, that the Hyacinth-bed must be made up with certain exact proportions of leaf-mould, sea-sand, cow-dung, night-soil, and other ingredients. One writer has gone so far as to recommend a mixture of magnesia, carbonate of soda, and other chemicals as a substitute for sea-sand—a good mode of promoting the Dutch trade, if it did not lead to the rejection of the Hyacinth altogether as an impossibility.

The Dutch method is very simple, and, as all the world knows, very successful. They use a rich and free soil, with a small admixture of sand, and a moderate quantity of manure but partially decayed. Our florists use very old dung, with abundance of sand, and sometimes soot and salt, and the consequence is that their composts readily part with moisture, and watering becomes necessary. Now there is no one thing so injurious to the Hyacinth as damp, spite of the fact that it grows so well in water only. Out of doors the Hyacinth is exposed to frost, and undue moisture then is death to it; and in the latter periods while it is in the ground the less it is watered the better.

Now, to obviate the need of watering, let the planting be managed thus:—Dig the ground at the end of September, and ridge it up for the atmosphere to sift through it freely. After a week or ten days, take out the soil to the depth of a foot, and lay down a stratum of *fresh* cow-dung four inches thick, or, wanting that, half-rotted stable-dung, the shorter the better. Old manure, such as is used for most other flowers, is useless to so gross a feeder as the Hyacinth, and it keeps the lower stratum too dry and open. When the dung is laid down, replace the soil, breaking it very fine, and mixing with it about an eighth

part of gritty river-sand, or, if that is not attainable, sea-sand may be used, but coarse yellow pit-sand, which is so often used, is the worst thing that can come into the vicinity of a Hyacinth. Those who question my advice as to fresh cow-dung-and it may startle some—are advised to try it one season with some bulbs on which they set little value: they will assuredly treat their choicest stock in the same way the year following, and this will come to be the orthodox way of manuring Hyacinths. is all they require to bloom superbly, and retain their strength for years; but it should be remembered that the dung should be eight inches from the surface, as it then attracts the roots downwards, gives the plant a stimulus just as it wants it, namely, when near flowering, obviates the need of frequent watering, by keeping a cool moist bottom, and affords the strength requisite to the production of strong offsets, and the forming of blooms for the next year.

About the end of October is the time for planting. Plant early and plant deep. If kept out of the ground, as they often are, till near Christmas, the bulbs get exhausted, and have no time to recruit themselves in the ground; and if planted too near the surface, they are stimulated by every glimpse of warm sun, and then nipped by every succeeding frost. They ought to work freely underneath, and get good root before they show In planting, let the whole of the surface be above ground. removed to a depth of four inches; rake it level, and place the roots eight inches apart, mixing the colours judiciously. It is a common and slovenly practice to dibble them in; this causes a hard incrustation around the bulbs, and frequently leaves a cavity directly under them. In this cavity the water collects, and opens the way for the entrance of frost, and the bulbs rot, or, if they fight through it, they bloom miserably. They do better on a level bed, if the drainage is otherwise pretty good; but as a convex has the neatest appearance, the bed may be dressed up towards the centre, but the cultivator must have an eye to the outside rows, that the water does not collect and stagnate about them. Many growers spread over the bed an inch of old hot-bed dung in December, to keep out frost, but loose litter is better, and it should be removed as soon as the weather will permit; but

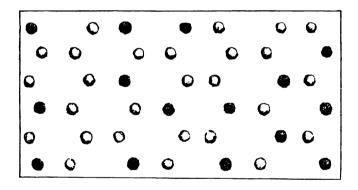
this is a matter that must be regulated by judgment according to circumstances. Hoops and matting may also be used against frost, but with such an amount of caution that the foliage when it appears, does not get drawn through exclusion of light, for the Hyacinth is very hardy, and does not ask to be pampered.

When they bloom, they must be kept neatly tied up, and the surface of the bed weeded; and after the bloom is over, the flower-stalks should be cut close over the crown, and the foliage left uncut till it begins to decay. When it parts readily from the root, the bulbs may be safely taken up. This must be done on a dry day, and as fast as the bulbs come out they must be laid sideways on a piece of level ground, so that they do not touch each other, and then covered with about six inches of dry sandy mould. It is very common to see fine collections forked up rudely, and scattered about in the glaring sun, and then left for a week or so "to ripen." They do ripen with a vengeance, but it is the ripeness of premature age, and after the scorching their strength may be considered as having evaporated.

The Hyacinth is subject to a disease which does not show itself until it has been some time out of the ground. If a single tainted bulb is mixed with a collection, or even touches other healthy bulbs, ten to one but it infects them all. This is the prime reason for keeping them apart from each other when they are taken up; and by spreading them out under a layer of mould. we "prove them" at the same time that we dry them off gradually. and fit them for storing away. At the end of a fortnight any that are touched with disease will begin to show symptoms of rottenness. Every one of these may be burnt, or consigned to the muck-hole, and the sound bulbs must be laid (separately again) on shelves in a shady place for a final drying. When thoroughly dry, cut off the rootlets, clean the bulbs, and store them in a dry place after any fashion that may suit your convenience, remembering that heat and moisture, when they are out of the ground, are their greatest of enemies. Of course every sort should be correctly tallied, with a view to correct planting.

On this method of culture frequent renewal of stock will be found quite unnecessary, I believe I am right in saying that Mr. Lockhart has practised such a method, using fresh dung for

both the Hyacinth and the ranunculus; and the only notable point to be attended to is to place it deep enough, so that the rootlets shall not reach it till the whole plant has made some growth, and is then in need and capable of assimilating an abundance of nourishment. During very bright hot weather at the time of blooming, a calico shading will tend to preserve the colours, and retain them in bloom for a longer period; but when used in garden decoration, such a protection becomes unsightly, and the display of colour is lost to the scene, though a few hours shade at mid-day is all that is needed, indeed continuous shading is injurious.



There are many ways of arranging Hyacinths for effect. The plan here figured is one in which the bulbs are grouped into a series of hexagons; and, excepting the outside rows, the whole are at equal distances. The bed is four feet wide, and of any length that may be necessary. The six rows across it are eight inches asunder, and the two outside rows are each four inches from the sides of the bed. As to colours, Hyacinths may very well be classed, as red, white, and blue; except a few yellow sorts, which may be classed with the whites. In the diagram the blues are marked by a darker tinting.

CHAPTER IV.

CULTURE IN GLASSES AND POTS.

THERE is nothing in the whole range of domestic floriculture so thoroughly domestic as a good show of Hyacinths in glasses, and there is no difficulty in obtaining a succession of them from Christmas to May. For ordinary purposes the bulbs should be



placed in the glasses during the first week in November, and the root should barely touch the water. They should then be placed in a dark closet for a fortnight, then the water should be changed, and the bulbs exposed to the light, unless any appear weak at the root, in which case they may, if the foliage is not blanched, be kept in the dark for a week longer. After they are once started, the water must be changed twice a week; rain-water should be used if possible, and it should be at a temperature of about 60°; a minute pinch of salt or nitre may be added to each glass when filled, to give strength to the plants; a pinch of guano,

or superphosphate of lime, or a drop of spirits of hartshorn may also be used for the same purpose, but in minute quantities, or it may do more harm than good. Offsets should not be allowed to push, or the main flower-stem will be weakened. Dark-coloured glasses most readily promote the growth of the roots, though when the roots have once made a good start they do very well in white glass. There are many kinds of Hyacinth glasses, all of them elegant, but the best is that known as Tye's Registered Hyacinth Bottle, made by Mr. Tye, of 107, Great Charles Street, Birmingham. Mr. Tye is also the maker of a very neat tally for naming Hyacinths, which will be found very useful to those who grow this flower.

I might now pass on to other matters, but as I abhor the cut-and-dried method of treating a subject. I shall occupy a little more space with specific instructions, with a view to enable my readers to grow Hyacinths to perfection in-doors; and first as to their culture in pots. Choose hard and well-matured bulbs; begin early, say in October for the earlier sorts, and arrange your sorts, so that you can have a variety in every successional batch; and each of these batches must be so managed as to follow each other till the end of the season. The soil for pots must be rich sandy loam; there is no necessity for any elaborately-prepared compost. A mixture of half road-sand and half leaf-mould is good, so is one of a third leaf-mould, a third of rotten dung. and a third of maiden loam. For the general stock use upright thirty-twos, and for the latest batch, on which a few words will be said presently, large forty-eights. The Hyacinth makes a deep root; hence if pots an extra inch deep can be had they will answer better. Put an oyster shell over the hole in each pot, fill with soil, and press the bulb firmly into the soil, with the crown above the brim of the pot, the bulb being covered to half its depth. They must not be plunged, because the soil would be too damp for them; it would be better to find a spot out-of-doors a little elevated, and there to place them, and then cover, not with coal-ashes, because that material causes canker of the flower-buds, but with fine dry mould, raised over the crown of each bulb into the form of a cone. To prevent the attacks of slugs, they may stand on coal-ashes, but not under them.

Potted Hyacinths are often placed on the shelves of the greenhouse, but there they generally suffer from alternations of temperature; but out-of-doors they get a gentle and steady bottom-heat from the earth, which promotes the growth of the roots. The first earthing over should be only three inches deep; but as the weather gets colder the covering may be increased, till it is from six to twelve inches thick. If a severe frost should occur, a little litter may be placed over that, but as a rule eight inches is as much covering as they need. Heavy rains or snow may be kept off with boards or thatched hurdles, and in the course of about six weeks every good bulb so treated will have formed a good matting of roots, and the flower-stems will be just pushing. Then you may begin forcing: but if there is not first a good root, artificial heat only tends to ruin them. Those to be flowered first may be removed to a house in which the temperature is pretty steady, at from 55° to 65°. They are immensely fond of bottom-heat, and as they get forward will do well in a temperature of from 70° to 80°, with abundance of light, say no less than four inches from the glass; but they are not to be exposed either to heat or light suddenly. If in a cucumber-frame or greenhouse, merely place them in the bed at first, and shade the young leaves from sunshine till they get a hearty green tinge, then plunge them and give plenty of light, but with precautions against any sudden chill from night frosts, When fully expanded they may finish off their bloom at a temperature of 60° in the greenhouse, the window, or elsewhere; and all through their progress they must be kept moderately moist, but never wet, the water to be soft and warm, a degree or two higher than the air they are in.

Long before they bloom you will have to note how the flowerstem pushes, for it is a common defect of even good Hyacinths, and especially those first forced, to come dumpy, the bloom close to the crown, so that the leaves overtop the blossom, as if the latter were ashamed of itself. This is easily prevented, though some plants refuse improvement. Make a number of funnels of stout brown paper, or even common newspaper, each funnel to be from six to nine inches long, and sufficiently wide to include the bulb and a portion of the soil, or, if in glasses, to fit outside the upper rim of the glass. The funnels are to be shaped like those in which grocers put sugar, but instead of the narrow end being brought to a point, it must be left open to the extent of half-an-inch or so. If made grocer-fashion, they may be pasted up, and when dry cut at each end to fit neatly, and admit light only at the top. This will seldom fail to coax the flower-stem upwards. As soon as the flower-stem is long enough, remove the funnel. For the early forced flowers this plan is essential to the perfect development of the flower.

To obtain a good bloom about the end of the forcing season, the procedure must be varied a little. There are not many exhibitors of Hyacinths at the early shows, though most shows offer prizes for them, and one reason is that routine stands in the way of successful exhibition at the time the early shows take place.

If potted in thirty-twos, and left out-of-doors till the end of January, they will be pretty sure to have protruded their roots through the bottoms of the pots, and if they stand on coal-ashes every fibre that touches them will be injured; if they stand on the soil then they may root into it, and to move them must do them serious harm, for it is the spongiole at the extremity of the fibre that feeds the plant. Besides this, as soon as the roots meet with obstruction, they are apt to lift the bulb, and tilt it on one side, and hence they look unsightly, as well as being injured. To carry them to the forcing-house in this state would make matters worse, for a little bottom-heat would destroy every fibre so protruded; therefore for late forcing it is advisable to re-pot every plant, and, with that object in view, it will be found a good practice to pot them first in large forty-eights, and as soon as the roots reach the bottoms of these to shift them into thirty-twos, carefully keeping the ball whole, and filling up with the same compost as that used at first. A fortnight after the shift, they may be put into heat, and the stimulus given to the roots by the addition of fresh soil will greatly promote a fine development of bloom.

There are other pretty ways of growing Hyacinths for the window, and among them the use of moss is very effective. If the collection consists of good-named sorts, it is best to number each, and make out a corresponding list for reference afterwards.

About the 20th. of October, procure a quantity of green moss, separate it with the hands, and take pots of three sizes, large forty-eights, large thirty-twos, and flat twenty-fours. Place an oyster shell over the hole in each pot, and fill with the broken moss, piling it up above each pot in a heap. In the forty-eights place one bulb in the centre, carefully pressing it in; rub a little white paint on the side of the pot, and mark the number according to the list, and one letter for the colour, as R for red, etc. In the thirty-twos place three bulbs at equal distances, and



of three distinct colours, say red, white, and blue; and in the twenty-fours four or five bulbs, and, if five, let the centre one be placed a little above the rest, and it should be the strongest and most showy of the five. A fine double white makes a good centre for mixed colours round it, or a row of white with a dark blue centre; but, if the stock is large, many plans of contrasting or blending the colours may be adopted. The pots containing more than one bulb must be marked next each, as described for those containing one, and for the centre an extra mark may be made, and a cross attached to distinguish it. A good

watering concludes the operation, and a cold frame is the best



place for them, with a covering of old tan, for six or eight weeks, and they can then be forced as required for the drawing-

room, and in the manner already described. Cold fresh-drawn water should never be used, whether they are in pots or glasses; it should be drawn over-night, and the vessel placed in the house till the morning, to warm and soften; or, if that should be neglected, a little hot water may be added to bring it to such a temperature that it does not feel cold to the hand. Rain-water is always best. If the water is hard, a minute pinch of soda, first dissolved in hot water, should be added to it.

When the plants are in flower, they may be disposed of in various ways to look ornamental. They may either be turned out by a gentle tap on the pot, and placed in baskets or vases, or the pots may be dropped into the baskets and concealed with green moss; and if the ornaments are tasteful and appropriate, this is one of the prettiest ways of adorning the drawing-room or the conservatory from Christmas to May. Twice a week these baskets should be placed on a large tray, and watered overhead with a very fine rose, to preserve their health and beauty, and renew their delicious odour. The subjoined engraving represents a rustic Hyacinth basket suited for the exhibition of a collection in moss or mould.

They may even be taken out of the pots, the moss picked off the roots, a thread passed tenderly round the roots, and then slipped into glasses. In common glasses they do well, if packed up to the neck in moss, leaving the upper part of the bulb uncovered: this promotes free rooting, without which no Hyacinth will bloom well. Hyacinths grown in glasses or moss should be very carefully dried. When the flowers fade, plant them in light sandy soil in pots, taking care not to bruise a single fibre; set them out in the open ground for a week or two, sheltered from excessive sun, till they are a little recovered, then expose them fully; after a fortnight, lay the pots on their sides till the leaves wither, and then dry them as described in Chapter III. They may also be planted in a north border, with plenty of clean sharp sand round the bulbs, plentifully watered, and so left to mature. They will not bloom the following season, but will have recovered by the second year.

CHAPTER V.

PROPAGATION, IMPROVEMENT, AND PROPERTIES.

As a florists' flower the Hyacinth stands high; and although it does not make such a feature at the early shows as it should do, nevertheless, a season never passes without gladdening the floral eye with at least a few good things. The Hyacinth propagates freely, either from offsets or seeds, the latter, as a matter of course, being the mode of raising new varieties. The offsets are to be detached from the parent bulbs after the latter are thoroughly dried, and are to be planted separately until they flower, when they may be added to the general stock. They usually flower the third year after separation.

In saving seed, that from the best-formed flowers should be chosen: the semi-doubles and the best of the singles are the best for seeding. Cut it off when perfectly ripe, with the stem attached, and so keep it till the time of sowing, which may be either the end of October or the last week in February. Sow in deep boxes in common friable garden mould, with about a third part of sharp sand. Sow moderately thick, and cover with half-an-inch of fine soil. Keep clear of weeds, water moderately. and protect from frost and exhausting sun with north-east winds during March, and leave the rest to Nature. The second winter they require careful protection, for the little bulbs are then near the surface, but otherwise they need little protection till the spring of the third year, when they must have a top-dressing of rotted cow-dung; and when the foliage decays in July, they must be taken up and stored away in the same manner as the large During the two following seasons the strongest bulbs will bulbs. The best must be marked, and named or numbered provisionally; and in the next season those worth it may have definite names, but all that fall short of the requirements of the standard, should either be got rid of or added to the mixed collection for use in clumps on the borders. Many, of course will be worthless, and some, perhaps, worthy of a place in

history. Beautiful hybrids frequently occur without the intervention of the florist, the work, doubtless, of the bee, who makes and unmakes many a choice thing in the flower world.

The properties of a first-class Hyacinth are a strong and erect stem, of not less than eight inches. The foot-stalk of each separate flower should be short and strong, standing out in a horizontal position, the crown or centre flower being perfectly upright, and the whole spike forming a graceful pyramid. Each flower should be large, should expand freely, the petals thick, fleshy, and broad; and double flowers should fill well up in the eye, the colour in every case bright and distinct. When the eye is of a colour different to the petals, the effect is very beautiful.

The criterion of a fine double Hyacinth, according to the "Botanical Magazine," is as follows:—

The stem should be strong, tall, and erect, supporting numerous large bells, each suspended by a short and strong peduncle, or foot-stalk, in a horizontal position, so that the whole may have a compact pyramidal form, with the crown or uppermost part perfectly erect. The flowers should be large, and perfectly double, that is, well filled with broad bold petals, appearing to the eye rather convex than flat or hollow; they should occupy about one half the stem. The colours should be clear and bright, whether plain red, white, or blue, or variously intermixed and diversified in the eye; the latter, it must be confessed, gives additional lustre and elegance to this beautiful flower. Strong bright colours are in general preferred to such as are pale.

CHAPTER VI.

SELECTION OF SORTS.

In selecting stock, the best effects are to be attained by choosing those sorts which are most distinct in colour, and as many of the single flowers are desirable, they should constitute at least one-third of the whole. Pairs of the same kind look well when grown together; and when grown in pots or glasses it is important to have each series in bloom at one time; hence early and late sorts must be carefully kept apart, and so managed as to bloom at the season they are intended for. The first section in the annexed list comprises twelve superb early Hyacinths: they may be considered the very best for early flowering. The whole are from the stock of the Messrs. Cutbush, of Highgate, London.

TWELVE FIRST-CLASS EARLY HYACINTHS.

Prince Albert, black.

Lawrence Coster, very dark blue.

Baron Von Thuyll, fine blue.

Charles Dickens, lilac blue.

Orondates, large, light blue.

Prince Frederick, double, light blue.

Hannah More, white, single, very large.

Prince of Waterloo, double, blush wht.
Tour d'Auvergne, double, white.
Waterloo, double, scarlet, an old but
fine sort.
Duke of Wellington, single, peach,
very beautiful.

GENERAL COLLECTION OF FIRST-CLASS VARIETIES.

Those marked thus o are suitable for pots, baskets, and glasses. All are suitable for the open borders.

DOUBLE RED.

- Alida Catharina, fine red.
- o Baron van Pallandt, crimson. Betsy, very fine.
- Bouquet Royal, rose, pink border.
 Cochenille, vermilion.
 Comtesse de la Coste, pink, dark eye.
- o Dan O'Connel, fine red.
- o Duke of Wellington, delicate rose. Eendragt, deep red.
- o Flos Sanguineus, deep rose.
- o Goethe, dark rose.
- o Grootvorst, pale rose.
 Josina Maria, deep red.
 Josephine, rose, dark eye, splendid.
 L'Honneur d'Amsterdam, bright
- o Milton, very deep red. Moore, beautiful red.
- o Panorama, rosy crimson.
- o Perruque Royale, pale rose,
- Professor Lindley, red, fine.
 Racine, crimson.
 Rouge Eclatante, crimson.
- o Rouge Pourpre et Noir.
- o Sans Souci, fine red.
- o Shakspere, extra fine.
- o Sir Walter Scott, beautifully striped.
- o Tamerlane, fine rose.

DOUBLE BLUE.

- o Alamode, purple eye.
 Albion, extra fine, dark.
- o Blocksberg, fine light blue. Bouquet Pourpre, indigo, green tips.
- o Comte de St. Priest, bright.

- o Cooper, beautiful blue, new.
- o Envoyé, light, purple eye. Helicon, dark porcelain. Keizer Alexander, dark purple.
- o Kroon van Indien, dark. L'Abbé de Verac, fine, shaded.
- La Charmante, dark.
 La Renommée, purple.
 L'Importante, dark blue.
- o Lord Wellington, dark eye.

 Madame Marmont, marbled.
- o Martinet, dark.
 o Mignon de Dryfhout, light.
- o Morillo, splendid.
- Noir Véritable, black.
 o Parel Boot, light porcelain.
- Pasquin, dark eye.
 o Passetout, shaded.
- Pourpre Superbe, dark purple.
 o Prince of Saxe Weimar, bright.
- o Rudolphus, light.
 - Sir Joseph Paxton, new and fine.

 DOUBLE PURE WHITE.
- o Alamode, pink eye.
- o Anna Maria, purple eye. Cœur Noir, black eye.
- o Diana Van Ephesen, proliferous.
- O Don Gratuit.
- o Gloria Florum, french white. Gloria Florum Suprema, beautiful. Grand Monarque de France, violet eye.
 - Grandeur à Merveille, blush white, novel.
 - Heroine, silvery white.

- o Impératrice Romaine, pink eye.
- o La Chérie, blue eye.
- o La Déesse.
- La Vestale. o Minerva, purple eye.
- o Miss Kitty, violet eye. Pyrene, green tips.

Sceptre d'Or, yellow eye.

- o Sphæra Mundi, blue eye. States-General, brown eye. Sultan Achmet.
- o Triumph Blandina, red eye.
- o Virginie, french white.
- o Virgo, pink eye. DOUBLE YELLOW.
- o Bouquet d'Orange, nankeen.
- o Heroine, bright citron.
- o Jaune Suprême, true.
- o La Grandeur, citron, fine eye.
- o Louis d'Or, dark yellow. Ophir, fine, yellow.

SINGLE RED. Amphion, fine eye.

- o Appelius, crimson.
- o Argus, rose. Charlotte Marianne, red. Circe, new and elegant. Diebitz Sabalkansky, dark.
- o Fireball, deep red.
- o Johanna Christina, bright rose.
- o L'Ami du Cœur, dark red. L'Eclair, bright crimson.
- o L'Unique, violet, extra. o La Dame du Lac, rose.

 - La Pucelle, delicate rose.

 - La Victoire, fine, dark. Le Francq de Berkhey, crimson.
 - Mars, green tips.
- Miss Ainsworth, extra fine, new. o Monsieur de Fæsch, fine red.
- o Norma, rose.
- o Paix d'Amiens, pink.
- o Princess Alexandrina, crimson.
- o Prospero Alpino, bright red.

Robert Steiger, new and superb. Temple d'Apollon, pale rose.

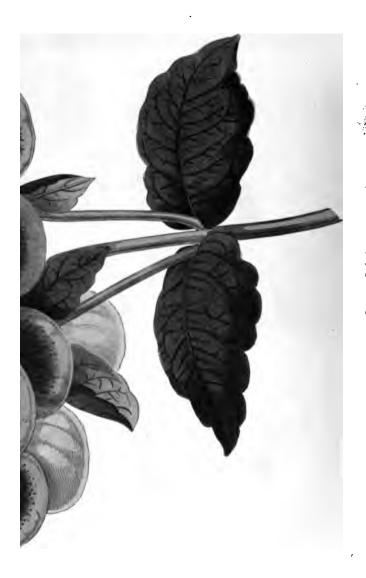
SINGLE BLUE.

- o Abd-el-Kader, very dark.
- o Anna Bolena, dark.
- o Emicans, indigo, light eye.
- o Emilius, porcelain.
- o Grand Vidette, pearl blue, extra. Iris, agate.
- o L'Ami du Cœur, dark.
 - Le Plus Noir, very dark.
- o Le Vrai Noir, black.
- o Lord Nelson, fine.
- o Nimrod, porcelain.
- Othello, black.
- o Prince Albert, fine, dark purple.
- o Prince of Wales, fine, glossy. Robinson, light blue. States-General, indigo.

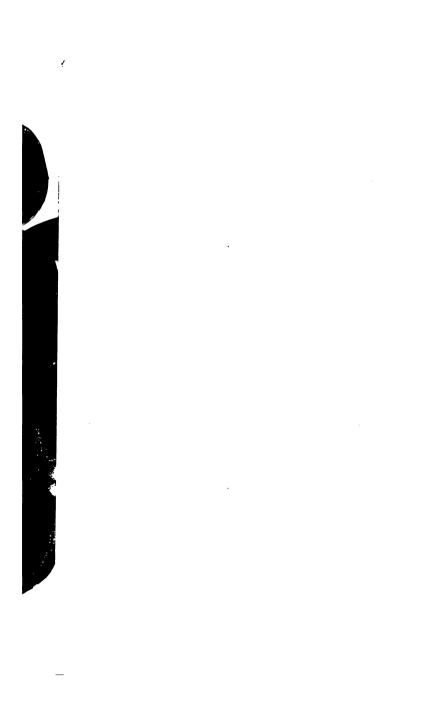
SINGLE WHITE.

- o Anna Christina, splendid.
- o Grand Vainqueur, splendid.
- o Grand Vidette.
- o Hercules, rosy white.
 - La Candeur.
- o Le Monarque.
- o Lilli, splendid.
- o Madame de Tallyrand.
- Mary Stuart, first-rate.
- o Mont Blanc, true.
- Norma, blush white, very fine.
- o Prince de Galatzin.
- o Queen Victoria, splendid.
- o Rosseau, pink shade.
- o Tubiflora, large bells, extra.
- o Voltaire, wax-like.
- SINGLE YELLOW.
- o Alida Jacoba.
- o Catharina.
- o La Héroine, citron, green tips.
- o Olga Mitzki.
- o Roi de Pays Bas, buff orange.
- o Victor Hugo, pure citron.









EXHIBITION FLOWERS.

THE

CALCEOLARIA:

118

HISTORY, PROPERTIES, CULTIVATION, PROPAGATION, AND GENERAL MANAGEMENT IN ALL SEASONS.

BY SHIRLEY HIBBERD.

Author of "Rustic Adornments for Homes of Taste," etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON: GROOMBRIDGE AND SONS, PATERNOSTER ROW. M DOCC LVII.



THE CALCEOLARIA,

CHAPTER I.

BOTANICAL AND HISTORICAL NOTES.

SINCE the "bedding" system has grown popular in this country, Floriculture has undergone many changes. There is less enthusiasm as to the production of individual flowers; what is known as the "fancy" has somewhat given way, and florists are beginning to give more heed to the uses of flowers in the production of combined effects, so that the patience they were wont to bestow in the nursing of a few special pets is now lavished on the arrangement of coloured groups, and to plant a series of geometric beds has come to rank equally high with the raising of a stage of show-flowers. By this we do not mean to imply that exhibitions or Exhibition Flowers are on the wane; indeed they never were so popular, for if Florimania is a little out of date, it is only because a higher appreciation of the moral uses and loveliness of flowers has given a wholesome tone to the pursuit; at the same time the art of grouping, of contrasting, of blending, and mixing to produce many varied effects, and vet combine all the several features into a complete scene, has been so zealously cultivated as to have interfered somewhat with the passion for fancy In consequence of this, plants that suit for bedding purposes are every year grown more and more extensively, their merits ascertained, the various effects of which they are capable determined, and the whole scheme of geometric gardening brought to such a perfection as to constitute a distinct department of Floriculture, scenic display being rather the aim than perfection of individual flowers.

It so happens that the majority of flowers grown for exhibition have characteristics very distinct from those used for bedding; in the one case we look to the properties, and consider to what perfection of development single specimens have been brought; in the other we care little for properties, and only enquire what is the effect of a mass when planted, how they contrast with others, how they help by the contribution of distinct colours towards the formation of a picture; permanence and abundance of bloom, comparative hardiness, low, bushy, and spreading growth being the qualities most anxiously sought, while the points that make an Exhibition Flower are in a great measure overlooked or forgotten.

Among the many things that claim attention equally from the



Foxglove.

exhibitor and the landscapist, the Calceolaria stands in the foremost rank. As a bedder it contributes the most vivid hues to a scheme of colours, and as an Exhibition Flower it holds high rank. The summer shows would be tame without it; and though it has no history, and few features of botanical interest, it is nevertheless one of the most renowned of florists' flowers.

In the natural system the Calceolaria is a member of the order Schrophularineæ, of which the foxglove is the type; and between the two flowers the resemblance is pretty close. In the foxglove

the corolla is tubular, with a short limb and a spreading calyx, but in the Calceolaria the lower lip is curiously inflated, and it is in the development of this inflated lip that a high-class flower has its chief characteristic. Associated with the Calceolaria in this order are many favourites of the garden and greenhouse—pentstemon, veronica, buddlea, paulowina, maurandya, mimulus, alonsoa, and Collinsia, as well as some choice wildings, not the least among the number being the lovely toad-flax, (Linaria alpina,) the neatest model of a snap-dragon to be found in the vegetable kingdom.

In the Linnean system the Calceolaria is ranged in the second class *Driandria*, and the first order *Monogynia*.



Calceolaria.

The Calceolaria is a native of high altitudes on the mountains of Peru and Chili. The first species seen in Europe was introduced in 1773; it was C. pinnata, a greenhouse annual. The next, C. Fothergillii, was introduced in 1777, from which date no other species made their appearance till 1822, when no less than four new species, two of them under-shrubs, enriched our collections. As soon as hybrids of these were obtained, they became special favourites, winning popularity as much by their curious form as by their elegant habits and lovely colours.

There are many distinct species of Calceolaria known in collections, and the characteristics of some are very distinct. C.

alba and C. floribunda were introduced from Chili by Mr. Lobb, in 1842; C. violacea, of a pale purple, and C. Sinclarii, the New Zealand species, have been but lately introduced; C. ericoides, the Heath-like Calceolaria, is a wiry, woody shrub, partly upright, partly procumbent, and studded with hirsute blossoms of a bright



C. cricoides.

yellow; but those in most request by florists are the varieties of the shrubby fruticosa, and the many gay descendants of corymbosa and arachnoides, of which the typical form has long been lost in the many hybridizings the flowers have undergone.

CHAPTER II:

HABIT, VARIETIES, AND GENERAL CULTIVATION.

The Calceolaria is in its native site strictly an alpine plant, and in constitution very closely resembles the auricula. Though it comes from a very sunny latitude, yet as it haunts elevated plateaus and grassy nooks on mountain sides, it can bear a considerably low temperature, and is, in fact, very nearly hardy under cultivation. Florists know well enough that however much alpines may be exposed to sunlight in their natural habitats, they invariably require coolness and moisture when brought under cultivation; and that need not surprise us when we reflect that such flowers are usually found in clefts and hollows, where grasses and mosses make green cushions for them, and the drift of storms prepares them a friable and fertile soil, while the snows above send down cool streams all the summer long to bathe their feet with moisture.

Now the whole code of Calceolaria-culture may be deduced from the recorded natural habits of the plants. Dryness, heat, a close atmosphere, and "coddling" in any way are death to it. Green fly, thrip, red spider, and constitutional debility make friends with the Calceolaria whenever it is denied fresh air, a cool, moist soil, and abundance of light. Pot plants, therefore, whether shrubby or herbaceous, are not to be so exposed to the sun as to get their roots heated; nor must they ever flag for want of moisture—even in their young state damp is less injurious than drought; and, above all things such a degree of hardiness as they do possess is to be encouraged, and this even in winter, so long as they do not get positively frost-bitten.

Calceolarias may be readily divided into three divisions, two of which are striking and distinct; the third is a recent blending of the other two. Herbaceous Calceolarias are most strictly florists' flowers; they are more tender than the shrubby kinds, less easily propagated and preserved, and belong to the greenhouse and the exhibition stage rather than to the garden. Their large blooms

are produced on long foot-stalks, and usually have more character as regards floral development than the flowers of the shrubby sorts. Unlike the latter, they do not bloom continuously, but in a series of separate efforts; whereas when once the shrubby kinds begin, they keep gay for the rest of the season, their flowers being smaller and less perfect individually, but more profuse, coming from all parts of the plant, while the habit of the shrubby kinds is closer, more bushy and compact; and hence for bedding they necessarily take precedence.

The third kind is the result of successful crossing of the other two; they are semi-herbaceous, combining the more hardy habit of the shrubby kinds with the large spotted or self-coloured flowers of the tender kinds. These latter are in much request, for the strictly herbaceous kinds are so apt to die off the first or second year after being raised, that growers become weary of purchasing them; and to obtain their fine flowers on woody-stemmed plants, having the habit of continuous blooming and easy propagation, was a triumph of no small import. We have yet to learn how far this crossing will affect the selection for bedding; the true shrubby kinds, having for the most part vividly-coloured flowers and strong constitutions, keep the lead that way, while the new intermediates are much esteemed for pot-culture.

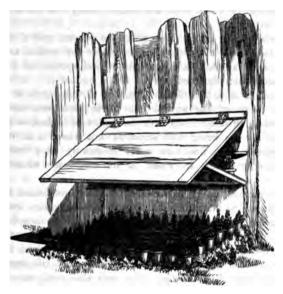
The soil for Calceolarias should be a compost of four parts yellow loam, one part leaf mould, one part very much decayed cow-dung, and one part sharp sand. In the earlier stages of growth more sand and less dung may be used.

The comparative hardiness of the Calceolaria must never be forgotten. Though it takes a gentle heat kindly, and especially in propagating, its strength can only be promoted by a fair exposure at all seasons of the year, except during severe frost. The shrubby bedding kind winter well in cold pits, or in the coolest part of a greenhouse; and where there is neither of such contrivances, a simple board on hinges in a sheltered corner, to keep off storms and intense sunlight, with a bed of coal-ashes beneath, will carry them safely through all the four seasons, except when severe frosts prevail. It is by such a plan that many of the Lancashire growers preserve their fine pansies, Calceolarias,

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fuchsias, and other nearly hardy plants, and the sketch below was made not long since in the garden of one who has taken many a prize.



CHAPTER III.

HYBRIDIZING AND PROPAGATING BY SEED.

Supposing the seed be well saved, it is always more remunerative to raise seedlings of all choice greenhouse plants than to purchase named sorts. To be sure there is something very attractive in the formation of a collection of named flowers that come from the hands of the first growers in the country, and about which we have heard so much that we almost look upon them as historical personages; still, with good seed we may in a single season obtain more diversity, and often plants of very high character, than by the best selection from noted catalogues or successful stands at exhibitions. Of course it needs care and patience; so it does to preserve named sorts when we have paid for them; and it also needs courage to get rid of all bad or middling flowers, of which there are always plenty, let the cultivator be ever so skilful.

In saving seed, let the best plants be chosen, and if hybrids are wanted, select a well-formed flower for the mother, and use the pollen of a bright-coloured self or well-spotted one for the father, and when the seed is ripe, if the mother is a herbaceous plant, consign it to the rubbish-heap, but shrubby sorts are worth keeping. Most of the semi-shrubby sorts have been raised by impregnating shrubby kinds with the pollen of herbaceous plants, both the parents being well selected; but there is no rule in such matters, and fine new sorts frequently come from seed which has been left to ripen in its own way without any artificial crossing at all.

In hybridizing, select half a dozen of the best-formed flowers on the chosen plant, and before they shed their pollen, cut away the stamens; then take the stamens of the highly-coloured flower just as they are ready to shed their pollen, and impregnate the pistil of the other. As fast as the father plant gives fresh flowers, continue to dust the mother blooms with pollen till they show that they are setting for seed. You will thus make sure of the absorption of the pollen. If dusted once only, the best moment may not be chosen, and the result may be disappointment. The mother flower must be carefully protected from flies and bees until the blooms have set for seed; and when the impregnation is effected, it will be well to remove all other blossoms, to throw the vigour of the plant into the ripening of the pods that have been operated on. The rule is, orm for the mother, colour for the father.

It may seem a loose way of treating the subject, but it is really true that you may sow when you like, grow them in any way you please, and bring them into bloom at almost any season, if you have the aid of a greenhouse, and observe these principles of culture which arise out of the habits of the plants.

Suppose you begin in March. Sow in pans; when the plants are up and strong, prick them out round the edges of pots an

inch and a half apart. Keep the surface always moist, and as soon as they touch each other, pot them singly in three-inch pots, with loam, peat, a little sand, and well-rotted dung, and as soon as they fill the pots, shift into four-inch ones, and then bring them into bloom. They may be made finer still by another shift into six-inch pots, and it may be necessary to pinch out the trusses as they show, to increase the size of the plants; and when their roots fill the pots again, they may be allowed to bloom, and, if carefully tended all through, will not need tying up, which, in nine cases out of ten, is an act that testifies of careless culture. During the hot season when they blossom, they must have an abundance of water, liquid manure occasionally, and, if placed anywhere so that the sun beats on the pot, let them be plunged inside larger pots, and the space between the two pots filled in with moss kept constantly moist.

CHAPTER IV.

CULTURE FOR EXHIBITION.

To grow them for exhibition, it is best to sow any time in August, but it is quite possible to bloom fine plants in twelveinch pots in May, by sowing as late as the first week in September. At this time of year it is best to sow them out of doors, and the procedure is as follows:-Select a shady spot, strew it with salt, and cover it with a layer of coal-ashes; then mark spaces for handlights, and lay another three inches of coal-ashes where the lights will stand, and another sprinkling of salt within and without the coal-ashes. This plan will give a quietus to worms and slugs. Then take some seed-pans or six-inch pots, half fill with drainage, on the drainage place a few lumps of tough peat or moss, and then fill up with a fine compost of leaf-mould, loam, and sand; water well, and leave them to settle; the next day sprinkle on the soil some dry mould very fine, press smooth, and sow the seeds thinly, giving them a covering of sand; put a square of glass over each pot, and then cover with the handlights.

If properly managed, the pots will not require watering till

the seedlings are up, but if they do, dew them by dipping a hard-brush in water, and then drawing the hand across it, so as to scatter a fine spray without washing up the seeds. As the plants show, tilt up the squares of glass by degrees, and at last take them away, and give air by degrees by tilting the handlight. At this stage there is a liability to damping, and to prevent that, lift the plants tenderly in little patches, and prick these out into shallow pans, and treat as you would cuttings for a few days, watering by means of a brush, or surfacing the soil by pouring the water on a piece of tile held close to the pot. Watering overhead is a bad practice with young seedlings. In about three weeks, prick out again separately, an inch or so apart, and then note which take the lead; but it will be worthy of notice that the backward plants are likely to turn out the best.

The next shift will be to three-inch pots, though some of the forward plants may have four-inch, to be shifted again about the middle of October into five-inch for blooming in May. The weak ones may be pricked out once more, giving them clear three inches every way. After this shift, prepare them for wintering; a cool frame does well for them, indeed they may be raised under frames instead of hand-lights. All they need is to be kept moist and secure from frost, say in a temperature for herbaceous kinds of from 38° to 46°. The shrubby sorts will bear exposure even to 32°, if kept hardy by a good circulation of air previously and during every intermission of frost; and though all are fond of moisture, it must not stagnate much about them when wintered at a low temperature. If in a greenhouse, give them plenty of air, and guard against close heat and dryness. Plunging in moss is always a safe plan for Calceolarias in a greenhouse. If any are wanted early, they may be hurried into bloom at a temperature of from 50° to 60°, if kept plunged and well supplied with air.

After the winter frosts are over, they make a rapid start, and to keep pace with their growth, shift them as they fill their pots; and if large specimens are required, pinch off any flower-stems that appear, and give them another potting. In this way the shrubby sorts will fill twelve-inch pots by the end of May, and bloom superbly at the end of June or the beginning of July. Herbaceous kinds bloom best in six-inch pots, but, if kept from

flowering, may be potted on and bloomed in eight-inch pots to advantage; indeed the first-blooming stems frequently come very irregular, and if pinched off when about three inches above the surface, and the plant shifted to a pot one size larger, they throw up several stems of equal strength, and if they require it, may be neatly staked so as to enable them to expand regularly.

By a little careful management, it is very easy to bring them into bloom just at the time when they will be wanted for exhibition. When the first blooms are pinched off and the plant re-potted, the second blooms usually appear six weeks afterwards. To bloom them in May, they ought to be sown in August, and have their last shift at the end of March; to bloom in June, some from the same sowing will do, to have their last shift at the end of April; and for blooming in July, sow in September, and shift finally at the end of May. With a little management as to the times of successive pottings and the selection of plants as to size, one sowing will do for the whole stock of early and late bloomers.

Although shrubby Calceolarias may be grown successfully in one uniform compost of sweet fibry loam four parts, sand, leafmould, and old cow or stable-dung one part each: it is advisable in the final potting of the shrubby kinds to adopt Mr. John Green's method, the value of which is proved in his great success as a raiser of first-class varieties. He first secures good drainage by a layer of potsherds, then a quantity of bog-mould and cow-dung in lumps as big as a hen's egg, then potsherds again, filling up with a mixture of loam and well-decayed cow-dung. The plants are then placed where they can be shaded with gauze or tiffany, and the house being closed early in the afternoon, the leaves are syringed all over, and the temperature kept at 45° at night and 60° in the day, giving air as much as possible. As soon as the plants make fresh root, they have abundance of water, and, in addition, once a week liquid manure from well-fermented sheep'sdung.

Well-grown Calceolarias ought at exhibition time to measure two feet high, and two feet in diameter; there is no excuse for pimping plants held upon sticks, when a little extra care as to potting will make bushes of them, with two or three dozen flowerstems to each.

CHAPTER V.

PROPAGATION BY DIVISION AND BY CUTTINGS.

THE herbaceous and half-shrubby varieties are the most difficult to propagate by cuttings, but the shrubby sorts come from cuttings as easily as geraniums. But it is sometimes desirable to perpetuate a good herbaceous kind without trusting to seed, and there is no better plan than to divide the root. This is not a difficult operation. When the plants are going out of flower they should be prepared for division. As soon as the best of the flowering is over, remove all young flower-shoots, turn them out of their pots, and reduce the ball of each so that it will go into a pot of half the size of that in which it was bloomed. Pot them in these smaller pots, using equal parts of leaf-mould or rotted turf, peat, strong vellow loam, and sand. Place them in a cool frame, and keep them moist and close for a few days, then give air and promote a healthy growth, and in about three weeks numerous side-shoots will appear. Earth up these side-shoots, and they will rapidly make root in the soil that surrounds them, and when well rooted, take them off, pot them in small pots, and place them in a cool frame, and keep moist and shaded till they make a fair start. They will soon require re-potting, when a little well-rotted dung must be mixed with the compost, and from that time the culture will be the same as detailed in the last chapter. Young autumn-struck plants of the herbaceous kind do better if wintered in four-inch pots, and with the first start in spring may be potted into larger pots, and grown on for blooming. Generally, herbaceous Calceolarias are best propagated by seed, and treated as annuals or biennials.

To secure abundance of cuttings of the shrubby kinds, plant them out in the garden borders as soon as they have done blooming, and stop the leading shoots. As soon as these shoots show a little woodiness of texture, slip them off, trim away the lower leaves, and then insert in a cutting-pot, with an inch of pure white sand on the top of the compost. In a cold frame they will root in three weeks, when they must be potted off in small pots, kept shaded for a week in a cool frame, and then set out in the open air on a bed of coal-ashes till the pots are filled with roots, and from that time the culture will be the same as detailed in the previous chapter. On a north border in autumn shrubby Calceolarias may be easily struck in almost any quantities from a few strong plants that have flowered. Pascall's patent cutting-pot, which is made with a rim to receive a bell-glass, does admirably for such propagation. Though generally used in the culture of ferns, these pots are very convenient for cuttings of all hard-wooded plants; we can keep them close with a glass, and at the same time have the cuttings next the side of the pot, where they always root most readily. Since autumn-struck plants grow very fast in the



spring, there is little need for keeping old stools through the winter, unless to take more cuttings from in spring. Mild bottomheat makes them strike rapidly then, but the grower must be cautious not to cut off stems that are setting for bloom, for these will never strike. A blooming stem may be known by the space between the joints becoming longer than in young growing wood; and if cuttings from plants in which the space between the joints has begun to lengthen be desired, it will be necessary to top them; they will then throw out side-shoots, and every one of these will make good plants if struck with bottom-heat in spring, and then grown on quickly in the way already described. There is nothing like young plants; old ones are seldom worth their keep; and for bedding out, the shrubby stock ought to be struck in autumn.

CHAPTER VI.

SEASONAL MANAGEMENT, DISEASES, AND ENEMIES.

I HAVE already explained how necessary coolness, moisture, and free exposure to air at all times except during frost are to the Calceolaria. From the moment seeds and cuttings are up, they should never be dry; damp is less prejudicial than drought. During winter, keep them as near the glass as possible, and when much artificial heat is used, the pots must stand on a moist bottom, and an occasional syringing overhead on sunny days will sustain their health and vigour. But though moisture is so necessary, the pots must always be well drained, and especially if kept in a cool frame. Young plants must not be over-potted: see that the pots are filled before shifting into larger ones. Such treatment will ensure an abundance of stout flower-stems from April to July, according to the age of the plants; and there ought to be but little need of sticks to support them, though some fine varieties produce such enormous trusses that it is sometimes advisable to give a little support, but the sticks should be as inconspicuous as possible.

Grown according to the foregoing directions, there will be little to fear of either disease or enemies. Sometimes a brown discolouration occurs—possibly fungus—which seizes on the foliage and becomes contagious, but this is usually the result of overculture. If kept as hardy as possible by fair exposure, the sorts are pretty permanent, and invariably healthy, but if at all coddled, although fine blooms and striking varieties may be obtained, they soon fall a prey to this leprosy, and at last die out. If the air of the greenhouse is hot and dry, red spider may attack them, and the remedy is sulphur fumes from a hot-water plate, with a good syringing to follow; moisture is always death to the red spider. Green fly is the most common pest, and the moment one is seen, shut up the house and fumigate with tobacco, keep the plants cool, give air, and use the syringe, and that enemy may find a quietus. Dry air also produces thrip; smoke and sulphur-

water are the remedies again. If a valuable plant is attacked with any of the above pests, and smoke and sulphur fail, syringe it with soap and water, in which a little size has been dissolved; shade a few days, then syringe again with rain-water slightly tepid, remove the top soil, and replace it with a little sweet and generous compost; but second-rate plants are best burnt at once if insects really get firm possession of them.

CHAPTER VII.

PROPERTIES AND SELECTION OF VARIETIES.

The Calceolaria has a fresh and hearty foliage, which contributes very much to its beauty. However fine the flowers, the foliage ought to be bright and healthy, the plants shrubby and strong, and the flower-stems stout enough to carry the trusses without support. The trusses should be large, and the flowers of each truss ought to open nearly at one time, so as to display a globular mass of colour. The blossoms should be circular in outline, without crumples or serratures, the lip well blown out; if flat, no amount of colour will compensate. The mouth must be small; it cannot be too small. Selfs should be very vividly coloured, and spotted ones regularly marked on a clear ground colour. St. Alban's Gem, raised by that eminent grower, Cole, of St. Albans, is a model of properties of the shrubby class.

For pot culture the varieties are numerous enough, but for bedding we must still adhere to the best of the shrubby sorts; for the truly herbaceous are fitful in blooming, and the semishrubby are apt to die off in three or four years, even if attempted to be kept on from cuttings; and at their best they cannot always be depended on for continuance of bloom. True the remedy is in seedlings, but for bedding purposes seedlings are unsuitable; we ought to know the habit and tint of a flower to a mathematical certainty before we risk bedding it, or, when too late, the entire arrangement of a garden may be ruined for a season.

Well-known shrubby sorts, struck in the autumn and wintered

in cold frames, with no more care than would be bestowed on cauliflowers, make the best of stock for bedding. They do better in a bed than in pots, and at the end of April may be lifted with good balls, and planted out for the season, where they will get established with the help of the spring rains before the general bedding stock can be trusted in open quarters, being so far hardy as to bear a temperature of 30° without injury.

Among the sorts best adapted for bedding the Rugosa section is perhaps the most used; Wellington Hero is a fine golden yellow; Cole's Goldfinder a superb yellow; Sulphurea splendens, the most hardy of all—it will stand the winter in the south of England; Kentish Hero and Shankleyana do well together in beds; so also with Ajax and Admiration. Among the marked flowers Little Dorrit and Shirley are good, the first having a yellow hood and a purple crimson front, with a margin of yellow; Shirley is a warm buff, with a clear yellow hood.

LIST OF FIRST-CLASS SHRUBBY CALCEOLARIAS,

SELECTED FROM THE EXTENSIVE AND HIGH-CLASS STOCK OF MR. CHARLES TURNER. OF SLOUGH.

Those marked thus . are admirable for bedding.

TWELVE NEW CALCEOLARIAS.

BAISED BY MR. COLE, OF THE KEYFIELD NURSERIES, ST. ALBANS,

Gem, orange brown, margin of yellow. (Frontispiece.) Indispensable, fine for pot culture.
King of Yellows, very dwarf and abundant bloomer.

- * Yellow Prince of Orange, bright yellow-a splendid variety.
- * Lady Middleton, orange brown.
- * Yellow Dwarf, yellow, blooms till late in the autumn.
- Rubra, light orange red, very dwarf—an immense bloomer.
 Snowflake, white, very distinct—a charming pot variety.
- Dropmore, straw yellow.
 Canary Bird, pale canary yellow.
 Clown, yellow with dark spots—fine for pot culture.
- * California, rich golden yellow, stiff habit.

OLDER VARIETIES.

All those marked for bedding are good for pot culture, but not vice versâ.

Albira, (Cole,) yellow with brown spots, free blooming, shrubby habit. Ajax. (Pince.) brownish red. yellow margin, large and showy.

- Aurea floribunda, orange yellow, dwarf compact habit, dense masses of flower.
- Amplexicaulis, pale yellow—a noted bedder.
 Attraction, (Perkins,) crimson, with orange margin and cap.
 Brunettia, (Henderson,) like Crimson King.
- * Beauty of Montreal, light crimson, small flower, but free blooming. Camden Hero, (Barnes,) rich crimson.
- * Crimson King, deep crimson, large, and of rather tall habit. Correggio, (Henderson,) large, brownish crimson.
- * Cleopatra, (Cole,) pale lemon, a good bedder.
 Comet, (Cole,) bright bronzy crimson, good form and substance.
 Conspicua, (Cole,) brown and yellow, very dwarf.
- * Desirable, (Perkins,) bright crimson.

Don Saturnio, (Henderson,) orange brown, large flower.

Don Francisco, (Henderson,) dark crimson, Sultan habit.

Eclipse, (Rollisson,) bright crimson scarlet, a fine variety, but not a free grower.

Ethel Newcome, (Henderson,) yellow, not so good as many others.

- * Erecta, rich yellow, a first-rate bedding variety.

 Emperor Napoleon, (Youell,) orange crimson with yellow margin, large.

 General Canrobert, (Henderson,) rich rosy crimson.
- * General Pelissier, (Henderson,) light crimson.
- Goldfinder, (Cole,) rich yellow—the best of the new bedders.
 Golden Cap, brown and yellow with yellow cap, dwarf habit.
- * Golden Chain, dwarf yellow, free habit.
- * Hawk, (Cole,) orange, spotted with brown blotches, bright, and good habit.

Harlequin, (Cole,) dull orange and brown, spotted; novel,

Hebe, (Cole,) yellow dotted with bronzy red, dwarf, sub-shrubby habit. Kayl, yellow.

- King of Sardinia, (Cole,) rich crimson, large flower, dwarf habit; the best crimson for bedding.
 - Lady Grenville, (Cole,) yellow, speckled with coppery red; sub-shrubby.
- * Lemonade, (Cole,) pale yellow, and best late.

Lady Isham, (Perkins,) reddish brown edged with yellow.

Maggiore, (Henderson,) dark brownish crimson.

Minnie, (Henderson,) bright scarlet crimson, small flower, very free. Norma, (Henderson,) large, dark brownish crimson.

Negro, (Nelson,) darkest crimson of all, only fit for pot culture. Novelty, (Cole,) buff with lake blotch, very distinct.

- * Orange Perfection, (Cole,) soft pale orange; valuable variety.
- * Orange Boven, (Cole,) bright brownish orange, dwarf habit, free bloomer.
- * Pallida, (Cole,) pale canary yellow.

Pilot, (Cole,) crimson brown, small flowers.

 Prince of Orange, (Cole,) bright orange brown fading to light orange, very dwarf habit, and an immense bloomer.

Purity, (Cole,) clear white, and free blooming. This variety is fine out of doors, if autumn-struck plants are used, and not allowed to grow too freely. A somewhat dry situation suits it best.

Rosy Morn, dark crimson.

Red Rover, (Henderson,) like Wildfire.

Surprise, (Henderson,) very much like Correggio.

Sultan, rich dark crimson, fine for pots, but superseded by King of Sardinia for utility.

* Sulphurea splendens, dwarf habit.

Shirley, (Henderson,) pale yellowish brown, beaten by Prince of Orange.

Shankleyana, like Kentish Hero, but darker.

* Superb, (Turner,) very dark, of good dwarf habit.

Tamberlik, (Cole,) brownish buff.

Vezzoza, shaded orange and crimson. -

Viscosissima, deep yellow.

Wellington Hero, (Henderson,) deep yellow, large flowers; good, but not equal to Goldfinder.

Wildfire, (Henderson,) brownish crimson, large flowers.





La Belle Alliance.

GARDEN FAVOURITES.

THE

GERANIUM:

ITS

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

BY SHIRLEY HIBBERD,

Author of "Rustic Adornments for Homes of Taste," etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON:

GROOMBRIDGE AND SONS, PATERNOSTER ROW.

THE GERANIUM.

CHAPTER I.

Though my window is small, and the curtains are grey, My few bonny flowers smile dulness away; My myrtles, my roses, my dazzling pinks, Glitter brave in the sunshine: and sometimes methinks That a prince in his grandeur would turn him aside, For a glimpse of the face of my gaily-dressed bride, Pelargonium her name—oh, her beauty is rare, She's the pride of my window, the choicest bloom there.

BOTANY AND GEOGRAPHY OF GERANIACEE.

EVERYWHERE the glorious June has draped herself in brightest colours, and the world is frenzied with the joy of flowers. gardens are in all their glory, flushing with dazzling hues, that make the blessing of vision almost pass belief. Delicious the green turf that breaks the gay parterres, yet unites them into huge patterns of dazzling tint upon the refreshing green—the bright smooth gravel and the distant belts of shrub all claiming to be essential parts of a picture, in which the "bedded" plants make a feast for the eyesight, that no language can describe. If we turn to the hedgerows and the open wastes, where the sunshine beats down in pulsations, and the air seems giddy with intense light and heat, how do the wildings splash their colours there, making every knoll into a temple of Flora, and adding to the grandeur of the leafiness of the woods, in their sprinklings of many colours. There is the foxglove, with its noble spire, the stitchwort, lingering still with its fragile blooms of snowy white, the hoary mullien, the darling speedwell, with its "eye of blue" twinkling everywhere, the wild rocket, the bladder campion, the sweet convolvalus, "in streaked vases flush," the larid nightshade,

the starry tormentil, and everywhere thousands of crane's bills, is lilac, pink, rose, and white, garlanding the banks with myriads of the neatest and brightest blossoms to be found in the whole wreath of summer wildings.

We have a large number of this crane's bill tribe inhabiting our hedgerows, and lovely things they are, as they sparkle from



Herb Robert.

their green nests like jewels left there by the fairies. These are all Geraniums, and have the characteristic properties by which members of the family are readily known. The most common and best known of the whole family is the Herb Robert, (Geranium Robertianum,) which is a showy weed of the hedges, sometimes introduced to the garden for the embellishment of the rockery,

or to trail over the sides of a rustic basket. These wild crane's bills naturally introduce us to the order Geraniaceæ, which is an extensive group of plants comprising three distinct genera, namely, Pelargonium, Erodium, and Geranium; or stork's bill, (Pelargos, a stork,) heron's bill, (Erodius, a heron,) and crane's bill (Geranos, a crane.)

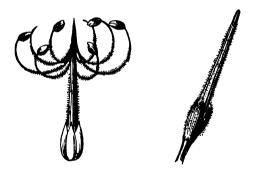
In all of these the styles or awns which surmount the seed-vessels bear a very moderate resemblance to the head and beak of a stork, a heron, or a crane; hence the several names of the genera, as distinguished by minute differences in the production of the seeds. Most of the true Geraniums and Erodiums are European, many of them British wildings; the majority are hardy. and flourish in any common soil. The best of real Geraniums for gardens are G. Mexicanum, Wallachianum, Lancastriense, rubifolium. Dahuricum, sanguineum, pilosum, and pratense flora pleno, the double meadow crane's bill. But when we turn to the genus Pelargonium we meet with the splendid flowers of the Cape of Good Hope, on which, for years, florists have lavished their care, and which now number hundreds of species, and thousands of varieties. A Pelargonium has a calyx of five sepals, two of which end in a spur, which runs down the footstalk, so that the latter appears enlarged near the base. The corolla is in five petals, the upper pair being usually larger and differently marked to the others. Though the perfect stamens vary in number from four to seven, there are always ten filaments. The cells of the ovary are five one-seeded carpels, the styles being closely attached when young, so as to resemble the long bill of the stork, but these when ripe spring from each other, and every seed has its feathery awn, by means of which the wind may waft it abroad for the spreading of the race. The Geraniums have ten stamens, all perfect and fertile, and the Erodiums only five. so that in the Linnæan system the three families are separated as in the Natural, their differences being decisive.

The distinctness of the organs of fructification, their almost invariable fertility, render it easy to hybridize the Pelargonium, and, perhaps, there is no flower which has been crossed to a greater extent or with more charming results.

In a floricultural view of the subject there are four distinct

families of the Pelargonium.—The biennial and annual kinds, the herbaceous species, the tuberous-rooted, and the evergreen shrubs; the latter being Pelargoniums or Geraniums proper, to which florists chiefly confine their attention. Of the six hundred species known, the majority are natives of the Cape; some few come from the Canary Islands, and one from Tristan d'Acunha, which is a still higher latitude than the Cape.

The geographic range of the Pelargoniums is of an intermediate character, neither strictly temperate nor truly tropical. Cape-Colony is subject to violent droughts and deluging rains, yet uniformity of seasons is its essential character. By the banks of



Seed-vessel of Geranium.

the Karoo, where there is a seasonal drought, the Pelargoniums become deciduous, but in moist places they are evergreen; and in the same way when they are allowed to go utterly to rest in winter, with no stimuli to growth, they shed their leaves, but under continuous greenhouse culture they preserve their verdure all through the year. Hence their adaptiveness to cultivation, the possibility by their tendency to rest when encouraged, and especially if well exposed in the summer and autumn, to become nearly hardy; and hence also the ease with which they may be forced and propagated, every joint having a fulness of life in it, such as we find in few of the higher class of Florists' Flowers.

CHAPTER II.

GENERAL CULTURE AND SEASONAL MANAGEMENT.

In the formation of a collection it is better if the cultivator can appropriate a house wholly to this class of flowers; then they can have the best of treatment, and a regular course of culture may be pursued. An airy span-roofed house, with stages near the glass, and abundant means for ventilation, is what they require; they revel in excess of light, but need a free circulation of air at all times to give sufficient hardness to the wood. Suppose a span-roofed house fifty feet long by twenty feet wide, the sides of glass and moveable for ventilation, inside a central stage of ten feet wide, a walk round it, and a platform all round next the side windows, two feet and a half broad, then you have space on the stage for three rows of full-grown plants, and the platforms will accommodate a large number of small plants in progress.

Though Pelargoniums take heat kindly there is no need in building a house for them, to secure more artificial heat than will suffice to keep out frost; and though a common flue is not the worst of heating mediums, a boiler and a set of hot-water pipes is better. At this time of the year, (June,) the plants are in their full glory, though some are already out of bloom and ready for re-potting. As they go out of bloom in July let them be cut down, and for a fortnight afterwards they should remain in a cold pit to recover from the operation, during that time giving occasional watering to the stems, keeping the roots only moderately moist. They will soon break, when air must be given, and preparations made for re-potting. This brings us to the proper kind of soil for the purpose.

The Pelargonium does not require a rich soil, in fact dung is no friend to it, though some few sorts need a richer soil to bring them to perfection, and in the culture of large specimen plants manure water is of great value, as we shall see presently. But for ordinary and safe culture there is nothing like well-rotted

turf or sound loam, with a slight admixture of sand. The plan adopted by most nurserymen is to secure a yearly supply of turf from an old pasture; this is cut four inches thick, well chopped, and then stacked in the compost yard, in ridges running north and south, and fully exposed to the sun. This soon ferments, and the gases produced in the process impregnate and fertilize the whole of the soil. It is turned over every three months, and at the end of a year is fit for use; a little sharp sand is usually added, when it is finally turned over and broken up for potting.

The process of potting specimens that have flowered must be conducted with care. When the young shoots have made an inch or so of growth is the best time to choose: turn out the ball, and shake as much soil as possible from the roots. roots are to be pruned a little, but not severely, but sufficiently to enable you to pot them into pots two sizes smaller than those they flowered in. Into these pot them firmly, water well and place them in a cold pit and keep close for a week at least; then give air gradually, and at last expose them freely, but not to heavy rains or frosts. The successive pottings must be regulated by the state of the plants, those potted at the end of July must have their last shift at the end of October, and be allowed to push for bloom during the winter to make a gay spring show; but the later sorts, potted in July and August, must be shifted on till November, and be put into blooming-pots at the end of January, or not till February or March, if they are late bloomers, or prove backward in growth. The grand thing is to have successional blooms, and these several pottings will insure it.

To keep stock in health and vigour it must not be crowded in the house; let there be a free circulation of air summer and winter, with an average temperature of 45° during the latter season, with a rise to 50° or 55° during sunshine or when a brisk fire is made up to drive away damp and secure a thorough change of air. What I have said as to inducing as hardy a habit as possible in the culture of the calceolaria, applies with equal force to Pelargoniums, though, as they are a shade more tender than calceolarias, they must always be secured against frost.

Old plants, with stems of stout well-ripened wood, make fine specimens that bloom early. There is not the necessity for young stuff, that is felt in growing many other choice plants—in fact Geraniums improve with age if properly treated. Grown freely, with moderate stopping, and occasional thinning where they make an excess of new wood, they require but little support, not that sticks can be done away with entirely, but the less of them the better. It is a disgrace to our exhibitions that even eminent growers crowd the tables with cripples, held up with props and crutches, who ought to show amateurs that plants may be grown to produce noble blooms and monster trusses, and yet have strength in their stems to bear them, without the aid of artificial supports.

Mr. Gaines, an old hand at Pelargoniums, and a raiser of some of the best varieties we have, thus epitomizes his own system of culture. "I put out my cuttings in July, and put them into a cold frame, well shaded from the sun. When they are rooted I put them in a compost, consisting of equal parts of loam and peat, mixed with a little silver-sand. In the last week of September I house my plants, keeping the house at a temperature of about 40°, and giving them all the air I can during the day. In the beginning of February I pot them into large pots-say the smaller into twenty-fours, and the larger into sixteens or twelves. When this is completed I give them a little constant heat to cause them to make fresh fibres. compost I use is one half of good rich loam, and the other equal quantities of peat and leaf mould, with about a quart of silver-sand to a bushel of the compost. When potting, I stop off all the points of the leading shoots, so that the plants may be kept short and bushy."

When cut down for re-potting, the cuttings may be struck for increase of stock, as described in the next chapter.

CHAPTER III.

PROPAGATION BY CUTTINGS.

As before remarked, the Geranium has a tenacity and abundance of life; every joint is vital, and will make root with very moderate care, in fact there in nothing easier to propagate.

As is very generally the case with soft-wooded plants, Pelargonium cuttings take best if made immediately after the plants have flowered; hence in cutting them down for new growth, every inch of wood removed may be made into a plant. Show and fancy Pelargoniums are usually struck in a gentle heat, but bedding sorts, especially the old scarlet Geraniums, make the best plants if struck in the open ground, fully exposed to the sun of July and August.

A regular propagating house is the best place wherein to strike cuttings of the more delicate kinds; a Waltonian case is also first-rate for Geraniums of all kinds, and is a good adjunct to a greenhouse. It is an invention of so much value to the amateur Florist, that I shall devote a chapter to a description of it presently. In the absence of either of these appliances a spent hot-bed does well, if the soil is removed, and a bed of coal ashes with sawdust above them, laid down to keep out worms, and serve for plunging the pots in, the lights being then replaced as usual. In summer propagation, artificial heat is hardly needed.

The best soil in which to strike cuttings, is a hazelly loam, mixed with sand; the pots may be either five-inch, to receive several cuttings all round next the pot, or small pots with one cutting in the centre of each, to be allowed to root and fill the pot before being shifted. The latter plan is convenient in managing a small number, but where the stock is extensive, the five-inch pots are best, but they require a tender care in shifting, to avoid injuring the young roots.

In planting the cuttings first secure good drainage to the pots by means of plenty of potsherds, the largest pieces being

placed at the bottom, with the smaller above them. The soil should be a clean hazelly loam, with a little sand mingled with it, the whole passed through a coarse seive before filling the pots with it. It requires a little judgment to use it in a sufficiently moist state, for it is not well to have to administer water, nor is it possible to strike the cuttings in a soil positively dry. Fill the pots and press the soil quite firm, and make the cuttings ready by trimming off all but the two top leaves; put them into the pots before they get dry. Each cutting should be from one to two inches long, a little firm at the base—if quite soft and green they may damp off—and the best



Cutting just removed.

The same ready for potting.

cuttings are the side shoots that have not flowered. Dibble in the cuttings round the inside of the pot, so that they touch the ware, and with the leaves pointing inwards, so that when the pots are closely packed, none of the leaves will be injured. Plunge them in the dry sawdust and shut down close, and darken with a mat or whatever may be handy, to exclude the light. Next morning give them all a fine shower from the smallest-drilled rose you have, sufficient to wet the soil quite through, leave them uncovered for an hour to allow the leaves and the surface of the soil to dry a little, and again shut close and darken before the sun shines on the frame. After a week give air regularly, and by

degrees expose them to the light, removing the shade in the morning only at first, then morning and evening, and at last encouraging growth by light, air, and moisture, according to your judgment of their requirements. The next step is to pot them into the smallest sixties as soon as they have made fair root, when the routine described in Chapter II. will commence, and the plants will be shifted on and put into blooming pots as soon as the new year brings a glimpse of sunshine.

At every potting give shade and moisture, but as soon as the plants are a little established, let them have air, and stop them by nipping off the top buds to make the side buds push. These latter are to be stopped as soon as they have made three leaves, and any ill-placed shoots must be removed altogether, the object of the grower being to obtain stocky plants, full of strength and bushy to the base, so that when blooming time comes, colour shall break from every joint, and the plants present masses instead of being merely dotted with bloom. With a gentle bottom heat, cuttings of Geraniums strike freely in March, and make good plants for flowering late in the season.

In propagating Fancy Geraniums a different plan must be pursued, for these do not root so readily as other kinds. A propagating house with gentle bottom heat is necessary. The cuttings must be short, with a little of the old wood at the base of each. Use shallow pans, or "Pascall's Propagating Pots," with plenty of drainage, sand, and loam, as described above, and a very little moisture; keep close, with a temperature of about 60° for the first week; then give air and water by degrees, and as soon as they make a start for rooting, which may be known by the forming of callosities, give water more freely, and proceed with the routine detailed above.

CHAPTER IV.

PROPAGATION BY ROOTS, BUDS, AND LEAVES.

GERANIUMS are so full of life, that every part of the plant may be used for propagation, not excepting even the leaves and flower-stalks. To Mr. Donald Beaton, of Surbiton, we owe many recent additions to our knowledge of this subject, and if the "Experimental Garden," which is Mr. Beaton's hobby, had done nothing more for the flower world than establish these new modes of propagating Geraniums, it would have done enough to entitle it and its veteran possessor to the grateful acknowledgments of all who take a sincere interest in horticultural progress.

It is true that in plant propagation many things have been discovered that are of little practical value, nevertheless how much of the real every-day-work of the florist has been improved by the speculations and experiments of men devoted to the science, through an ardent love of it, and gifted with special abilities to pursue untrodden paths? Mr. Beaton's experiments on this class of plants alone may be regarded as marking the highest point attained by any cultivator during this present century.

The propagation of Geraniums from roots is only pursued with such varieties as refuse to be increased by cuttings; some of the Fancies, and the original Capes being those usually propagated in this manner. The plan is to take an old plant which has flowered, turn it out carefully, and shake the soil entirely away from the roots. Then cut the roots into short pieces, retaining to each a few healthy fibres, and pot these root cuttings in sandy loam, in very small pots, leaving the top of the cutting just exposed to the daylight. A gentle watering and a steady bottom heat of 70° with shade, till they begin to break, will insure plants at the rate of ninety per cent. Many of the roots will break in several places, in which case the shoots must be reduced to one, which is to be the stem of the future plant. In removing the superfluous shoots many will be obtained with a little root attached, these will also make plants if carefully tended, with heat, moisture, and shade for a time. The plants

obtained in this way have very much the appearance of seedlings, and need stopping when they have attained the height of three or four inches.

In propagating by buds take the shoots off plants that are pushing vigorously. Remove the leaves, leaving the base of the leaf-stalk attached to the stem, and to each bud leave a quarter of an inch of wood below the bud. Split the shoot down the centre, and plant every portion of the split stems which contain buds thus prepared in shallow pans filled with loam and sand, without a particle of manure or leaf mould.

In planting it is necessary to use a short blunt stick, a little larger than the cuttings. Make the hole, drop into it a pinch of dry sand, then put in the cutting with the cut side next the pan; fill up with sand and leave the point of the bud just visible to light. A gentle bottom heat with moderate moisture and shade will cause them to break, and every one with careful treatment will form a good plant. For increasing stock early in spring this plan is admirable, for the plants may be made to furnish an immense number of buds for the purpose, which will root quickly, and form good stock for blooming late the same season.

A Waltonian case, set to work at the end of February, would do wonders in this way for any amateur needing but a moderate supply of plants, yet determined to enjoy the recreation of raising them himself. The mode of propagating from leaves is thus described by Mr. Beaton, in the seventeenth volume of the "Cottage Gardener:"—

"The smallest-sized pots are the best for all scarce Geranium cuttings. One cutting to be put in a thumb pot, and thirteen pots to the dozen ought to be a safe rule in gardening practice, but not in nursery practice. One or two per cent. is all the verge on "profit and loss" which most nurserymen allow to their Geranium propagators; but then they do nothing else besides.

I prefer sixty-sized pots, and four leaves in a pot, because thumb pots are such fiddling work to water, and then they are apt to be dry before you can turn your back. The frame, or pit, or propagating house for this work must not be quite so damp as for ordinary propagation, not, at least, till after the middle of May. The easiest way is to cut up a stem into so many joints, the cut to be just above the joint; then you have the length of stem between the joints for a cutting. Each length has one leaf and one bud at the upper end, and each ought to be thrust into dry silver-white sand in a flower-pot saucer as soon as it is cut. The dry sand will suck up the moisture from the cut ends in a short time, and thus render them less liable to damp. The cutting pot to be filled as for other cuttings, but with a thicker covering of sand on the topso thick that the bottom of the cutting is just between the sand and the sandy compost below. The leaf side of the cutting is to be the farthest from the side of the pot, and if the leaf is top-heavy, or is a very thin leaf and not able to bear up, it must be tied to a little stick; and lastly, the centre of the pot must be left with a hollow to take the watering without wetting the cutting.

If, on the other hand, leaves are to be taken without cutting the shoots into lengths, you will have to take a good slice behind and below the bud, as you would for budding, and the flat side of the slice is to be next the side of the cutting pot, and quite close to it. The top of the bud, or part where the bud is out of sight, to be just below the surface and no more. All the rest of the proceedings are the same as for joint pieces. From 60° to 70° is the best heat for these kinds of cuttings; for if the heat is much higher the buds will start before roots are made to sustain the growth, and that might kill them.

I have struck a potful of a dozen leaves sliced off, and all resting against one flat tally-like stick in the centre of the pot, and I' have docked leaves by cutting one-half of them off all round, in order to get them to stand up "pricked ear" fashion; for if they are allowed to flag or droop they do little or no good. The young plants they make are more like seedlings than established plants; therefore the plan is more useful for new or rare kinds.

The roots of Geraniums make cuttings as well as the tops, and they grow into plants much sooner than leaf cuttings. At this season, (March.) or when we examine the stock of old plants, I mean bedding plants, we find some are gone at the collar, while

the roots and top are as fresh as larks. There is not one moment to be lost when you find the black disease has encircled the collar of a favourite kind. If the black is not all round the stem, you may perhaps get rid of it with a careful slicing away of the black part, like a surgeon dressing a bad jagged wound; but in most the safest way is to cut down the plant, and make cuttings of the tops and roots.

Thus last week I found one of my best seedlings from *Punch* had gone black at the collar, and there was more than an inch black all round the bottom of the stem. I cut this plant below the black part, and just over the top of where the first roots sprung from; I then pulled up the stump gently, so that part of the top roots are now above the surface of the mould, and I shall chance it to make shoots as a dahlia root does.

A safer plan would be to shake out the roots from the mould, and make independent cuttings of the largest of them, cutting them into four-inch lengths, and planting them close together round the sides of a pot, with little more than quarter of an inch above the surface. The top of this plant, which was a single-seedling stem, I cut into three good substantial cuttings; but, being stout and not very ripe, I left them twenty-four hours before I put them in. One ought to examine the roots of all dead or dying Geraniums, and if it is a valuable kind we should try to save it by root cuttings."

After all the most simple plan of propagation is the best—best as giving least trouble with great certainty, and best also as insuring stock that will winter well, and break magnificently in spring. From the middle of July to the middle of September every kind of Pelargonium, fancy, bedder, or what else, will come from cuttings in the open soil without shading, almost without being looked at from the day of planting, till the time comes to pot them off for winter. For fifteen years past I have propagated Geraniums of all kinds in this way, putting the cuttings into an open border, with no other preparation than just the mere removal of the lower leaves; and though they have had the sun on them from the day of planting to the time of taking up, the losses have been next to nothing, and the plants equal, nay better than could be had by any system of coddling

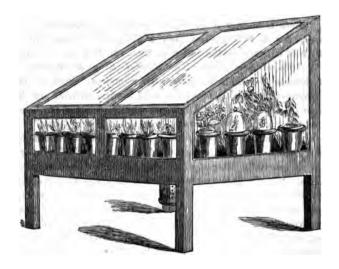
in-doors. As for Geraniums in beds, the inner shoots can be taken off by hundreds when about four inches long, and just firm at the base. Let each have a heel; smooth off the heel with a knife, trim off three or four of the bottom leaves, and put them in at once before they dry, in any piece of spare ground you have which is fully exposed; a border facing the west being perhaps the best position. They may be in rows six inches apart, and four inches from cutting to cutting. If the weather is very dry a little water must be given for the first few days, and after that they may just be left alone till well rooted, and that will happen soon enough to enable you to pot them off by the end of September, and you will have the finest stock for health and vigour that can be had for bedding next summer. Mr. Beaton says, "there is neither a single nor a double Geranium in the country, nor a Pelargonium, nor a fancy Geranium, but will come from cuttings in the full sun, from the first day of August to the 10th, of September. The Bridal King is probably the most delicate Geranium we have after Countess. Both of them root from cuttings with me, on a west border, without the least particle of shade, and I did not put any shade over cuttings of any of the race in the open air for the last dozen years."

To the quotations already made from the valuable contributions of Mr. Beaton to the "Cottage Gardener," the following may be added as especially interesting to the breeder of seedling Pelargoniums. "In the Experimental Garden they can root the flower stalks of Geraniums quite as easily as the shoots, or cuttings. or leaf stalks: if a cross breeder should send a truss of flowers to be seen and judged, the people of the 'Experimental' are so clever, that they not only root the stalk of the truss, but get the remaining portion of the flower buds to open, use the pollen of such flowers on their own breeders, or extract the anthers, and make use of so many new mothers, on which to dust the pollen of the Experimental stock." This and the established facts of rooting any part of the stem, the mere leaf and the dormant bud of the Geranium, are worth all the theories that ever were propounded to puzzle gardeners; the grand thing is that they are facts, which any one with a plant and a handful of mould may verify for himself.

CHAPTER V.

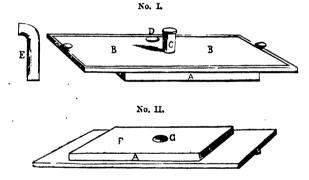
THE WALTONIAN CASE.

THE Waltonian Case recently referred to is a valuable auxiliary to the work of spring propagation, and especially as a means of increasing bedding stock from plants kept over winter for the purpose. It is the invention of Mr. Walton, of Surbiton, Middlesex; improved and brought to its present perfection by Mr. West, of



Surbiton, who is the sole manufacturer. We may here briefly describe it. The figure representing the case in action, conveys the idea of an ordinary garden-frame of a neat construction. Such is its appearance and general use, but its peculiarity is that it contains a provision for the maintenance of a steady bottom heat, and that heat can be so regulated as to fit it for any of the ordinary uses of a dung-pit or a propagating house.

The manner in which heat is supplied will be understood by reference to the subjoined diagrams. In Figure I. is represented a frame or trough of zinc, which forms the inside bottom of the case on which the plants rest. This dish has two perforations in its upper surface, the central one, C, communicating with a boiler, A, which is attached to the under side of the trough, and D serving as a flue for the escape of smoke from a lamp which burns beneath A, and which after traversing a hot-air chamber, which forms a portion of the inner construction of A, escapes by the tube or flue E, which fits over the orifice D, and conducts the smoke out through the back of the case. The under side of the trough is seen in Figure II., where A is the boiler, C



the entrance to the hot-air chamber, into which the flame of the lamp enters; and F the outer casing of the chamber. When this tray is placed in the case, the hole, C, in the boiler, fits over a box in which the lamp is placed.

The boiler is filled, and the lamp lighted, and a steady heat soon rises to the upper surface of the tray. This latter is covered with an inch deep of silver-sand, kept constantly damp, and on this layer of damp sand the pots are ranged as in any ordinary pit. One which I had at work this spring, and which turned out for me a vast number of young Geraniums and similar stock propagated rather for experiment than for any other reason, has the following dimensions. Length of tray, BB, thirty-four and

a half inches, breadth seventeen inches, which is equivalent to a working space for pots, of five hundred and sixty square inches; sufficient for thirty-two three-inch pots, in four rows of eight each.

The price of the size described is forty-eight shillings, but of course they may be made of all sizes, and at all prices. It is an ingenious mode of introducing the working department of plant propagation to the sitting or drawing-room; for this is just the sort of utilitarian toy that will be sure to entertain an invalid, or prove a useful adjunct to a greenhouse in the hands of a practical amateur florist. Space does not allow me to say more here on the subject of Waltonian Cases. In "Rustic Adornments for Homes of Taste," I have dealt with the subject in detail, and to that work must refer the reader for an account of its various uses and minutiæ of management.

CHAPTER VI.

THE PELAEGONIUM AS A FLORIST'S FLOWER. ITS BANK, PROPERTIES, AND PROSPECTS.

THERE is nothing that takes the eye more quickly at a summer show, than a stage of Pelargoniums; he who schemes an entire exhibition, ought to have the fear of them ever before his eyes, for if injudiciously placed, they are capable of effacing the impressions that plants of weaker colour would make, by their intense glare of dazzling tints. They seem to rejoice in their gaudy trusses, which they hold aloft like cressets of fire, and one can scarcely look on a mass of them, when they eclipse some neighbouring plants of merit, without thinking of that story of Turner, in which he lays on vermilion to "put the Scotchman's eye out."

The real splendour, usefulness, ready propagation, and the large average of successes that attend hybridizing, are reasons enough for the popularity of the Pelargonium. Besides the many species, the crosses alone begin to bewilder one, and we have fancies, bedding sorts, variegated, and many whites, pinks, and scarlets; but the large-flowered variety, of which our frontispiece presents an example, is the Pelargonium proper—the pride of

the florist, and the subject of much skilful, manly, honest, but fierce competition. What Lyne and Gaines have done in times past, Beck, Foster, Hoyle, Kinghorn, and Turner, are labouring at still. The charming markings of White Perfection, one of the prettiest things Lyne ever raised; the splendid form and substance of Redworth and Celestial, the neat colouring of Marmion and Hesperus, are even more than matched in such welcome acquisitions as Emperor, Wonderful, Petruchio, Sanspariel, and Gem of the West, though to these a round five and twenty might be added from the list of newest things, and it would be a puzzle to determine which, all points considered, should bear away the palm.

Still the growers have yet something to learn; in witness whereof behold the forests of sticks that some collections come burdened with, note the over-growth here and the under-growth there, and the vast difference in tone and character of the same variety, as produced by different growers. The provincial florists are certainly far behind those of the metropolis in this respect, for the Pelargonium is truly a metropolitan flower, and for thirty miles round the metropolis is the region of its greatest perfection.

In regard to high culture there is evidently a want of some reliable, generally agreed-to standard. While Mr. Beck produces noble trusses in such free-blooming sorts as Star and Rosamond, Mr. Hoyle labours at the individual blossoms, confining himself more perhaps to form than to colour; but colour alone seems to be the grand aim of Mr. Foster: at the same time each in the path he has chosen is a Hercules. This brings us to the question of properties, on which in the case of this particular flower, a fair-sized volume might be written. The ladies like the nosegay Geraniums, they doat upon the bedding sorts, and care little about what florists call "properties." No doubt the ladies are right, and Sir Joseph Paxton did wisely when he offered prizes for the improvement of those very sorts which are of necessity cast out of the true florist's catalogue, but which are invaluable in garden and conservatory decoration. If we get close-growing kinds that look hearty, and that carry heavy trusses of dazzling or chaste colours on long flower stems, and with little disposition to seed. what more can we want for purposes of decoration? among the variegated Geraniums we can come to depend on good

foliage, without puckered edges, as in the pretty Golden Chain, why then our schemes of edging and shading will be perfected, while for choicer purposes the free-blooming show varieties will



carry the day, when their colours are striking and their habit good, even if they do not conform to rules, when put to the

test, as to properties. Among the "fancies" a few darks, or novel tints of orange, red, and white, are wanted for variety's sake, and if such growers as Turner, Ambrose, and Henderson, will keep such in view, no doubt they will soon be forthcoming.

Strictly then the test of properties must be confined to the large-flowering Pelargoniums, all other sorts creep out of the exhibition catalogue by some loophole or other. The annexed engraving will explain the ideal circle, and the nearest approximation yet made to it. Theoretically the flower must be exactly circular, with no indentations on the margin; the petals should be of good substance, broad, smooth at the edges, and slightly supped, and so overlapping as to present the appearance of a slightly concave disc, rather than a five-petalled flower. colour should be bright and dense, the spots on the upper petals contrasting well with the ground colour, as in White Perfection, where the nearly black upper petals are margined with a sharp edging of white, having a splendid effect. Both the upper petals should be alike, and the lower petal uniform in arrangement with the centre of the upper pair. The feather must be regular and decisive, but none of the marks on the petals should break through to the edge. The plant should be shrubby, close, and able to bear its blooms, however profuse, without artificial support, though his is a point the least attended to of any. There ought to be not less than five pips in a truss.

CHAPTER VII.

HYBRIDIZING AND RAISING SERDLINGS.

It is very easy to hybridize Geraniums, and no flower sports more freely. Choose for the purpose those plants which combine the requisites of form, size, colour, and good habit. Save seed only from those which possess qualities worth perpetuating. The mother plant should possess form in the highest possible degree: this is very important in all attempts at hybridizing. The moment the mother plant is determined on, select the most promising flowers, and cut off the anthers before they shed their pollen, and from the sire remove the pistils, and dust with the pollen the moment the anthers appear ripe. Repeat the operation so as to insure success, but allow no insects to interfere with your work; a close-fitting muslin cap must be used to cover the mother flower. When the seed is ripe divest it of its awns, and keep it in a dry cool place till spring, when sow in March, in a gentle heat. If seed is plentiful some may be sown as soon as gathered, so as to get stocky plants before winter; with the early-blooming sorts this is advisable.

The best way of raising seedling Geraniums is to sow in shallow pans or pots, well drained, in a compost of leaf-mould, peat, and sand; or loam, sand, and rotted turf; the compost must be fine, rich, and light. As soon as the seedlings appear, sprinkle over the surface of the soil a little very dry sand and peat, as small and friable as snuff, as a preventive of damp. If damping occurs this is the best remedy, with either seedlings or cuttings. A little more air, and a few degrees more heat, is another good rule against damp.

When the seedlings have made their third leaf, pot them off singly into two-inch pots, in loam and leaf mould; keep them near the glass, but shade from hot sun. As soon as they fill the pots with roots, give them a shift to a size larger, and after that grow them on in the manner already described for buds and cuttings. They should go out of doors as soon as the weather permits, and if the wood is well ripened, they will make bushy strong plants, to flower the following season. Five-inch pots are large enough for their first flowering.

CHAPTER VIII.

CULTURE OF SPECIMEN PLANTS.

Specimen Pelargoniums are magnificent things when well grown. The most showy sorts only should be chosen, those of robust growth and free habit being of course the best. The plants should be struck from the points of good shoots in summer, and potted off in time so as to bear a second shift before winter. In the following April select the most promising, and shift them into twenty-four-sized, and as soon as they make a fair start stop them, and keep them stopped at every third joint. By the last week in May they may be turned out from the house, and have an east or west aspect; those that have filled their pots with roots must have another shift. They must be kept well syringed, must never flag for want of water, and must be fumigated if green fly attacks them.

By September they will be handsome promising plants; those that require shifting must have it, for on no account must they get pot-bound. Place them in the house, as close to the glass as possible, give air in fine weather, and from that time to March following keep them in as quiet a state as possible, by administering water sparingly, and admitting as much air at all times as possible. At the beginning of March shift the whole into blooming-pots. sixes or eights, according to the size of the plants. In potting make sure of good drainage, and use a compost of two parts turfy loam, one part rotten dung, and one half part sand and turfy peat, the whole chopped fine but not sifted. Train out the plants for blooming, and as soon as they have made a fresh start after the shift, begin to administer manure water to promote a splendid show of bloom. The best for the purpose is made by steeping one bushel of sheep or goats' dung in twenty gallons of water, or two bushels of rotten horse dung in the same quantity of water. Let it stand three days, and then water the plants three times a week with it, until they show their colours, when it must be discontinued, and the ordinary watering be resumed. When the

plants bloom a little shade should be afforded them to preserve their colours, but if much shaded they lose strength, and are the worse for it afterwards. Shaw's Tiffany is the best of all shading materials; it breaks the intense power of the sun, while admitting a fair share of subdued daylight.

After blooming the plants must be cut down to the last two eyes of each leader, and be transferred to a cool frame till they break again; then repot into as small pots as their roots can be got into, and from that time cultivate as already directed. Young plants produce the finest blooms, but old plants are earlier, and bloom more abundantly.

CHAPTER IX.

GRAFTING PELARGONIUMS.

In the culture of the Pelargonium grafting is occasionally had recourse to, as a means of propagating kinds that are shy of culture by other means, or for the sake of increasing the extent of collections where space is limited, and for the obtaining of fine specimen plants. At the Sydenham Exhibition, in September, 1856, there was a very pretty show of grafted Geraniums, shewn by Mr. Peed, gardener to T. Tredwell, Esq., of Norwood. The collection consisted of Emily Field, Kingsbury Pet, Reidii, Boule de Niege, four feet high; Commander in Chief, five feet; Titian, four feet; Brilliant, four feet; and Attraction, three feet six inches. These were all grafted by cutting off the top of the stock, and splitting the top of it into halves, and wedging the end of the graft down into the slit.

This is an operation easily performed; indeed any one who has ever grafted an apple on a crab stock, or who has ever seen the process, may soon become an adept in grafting Geraniums. The stocks should first be secured, and the best for the purpose are summer-struck cuttings, taken from old, woody, strong plants, two years old at least. Grow these stocks into strong, bushy, dwarf plants; promoting their vigour by the means already pointed out for the culture of specimens. In the ensuing summer pot them

into large pots, about a month before you intend to graft them, for to make the graft "take" there must be a brisk flow of sap in the stock. In the grafting first cut back the stock to a place where the wood is just half-ripe; it must be sound and hard, but neither green nor brown. Let the scion be in the same half-rip state. After cutting back the stock, split it down an inch and a half, and if you can choose a part where the stock breaks into two branches, the fork will be just the place for letting in the graft. Cut the graft into a clean wedge, and insert it to fit neatly bark to bark; if this is not possible, let one side at least be well united,



Grafting Geranium.

The graft tied up.

so that when the graft "takes" the bark will close over and complete the union. Tie up moderately tight with worsted-thread, and paint over with a thick coat of clay paint, to be made thus: take some soft clay and knead it with a little water till it is of a pasty consistency, then put it into a clean vessel with a little more water, and work it about with an old brush till it is of the thickness of cream, free from grit and semi-liquid. Paint the graft over with this, and shake over it as much dry sand as will dry it immediately. Then apply another coat, and another, drying each with sand as soon as applied.

To secure the graft against damp it will be advisable to surround it with an inch of silver-sand, not only round the grafted part. but an inch above and an inch below: and the best way to do this is to make a paper-funnel, similar to a grocer's sugar-paper, tving the close bottom of the funnel round the stock below the graft, filling it with dusty peat and silver-sand, and then closing the top over into a barrel-shape; this will be the best security against the failure of the graft. The scion will need support for a time. Three weeks after grafting, stop the top parts of the stock, and loosen the bandage slightly: but there must be no haste, for Geranium wood does not unite very quickly. exhausting influences will of course check the union; hence it is advisable to syringe the leaves of the scion occasionally, and to keep the stock in a state of robust health. When they show that they have fairly united, and the scion begins to grow, the bandage may be removed, and a little soft moss applied in its stead, and in time this may come away altogether. When they make a fair start, grow them as directed for specimen plants; and their appearance, when blooming time comes, will be quite superb. Geraniums may be side or whip-grafted, but the wedge plan is the best, because of the soft nature of the wood we have to deal with.

CHAPTER X.

DISEASES AND PESTS. WINTERING BEDDING STOCK.

The green fly and thrip are to be eradicated by the means described in the treatise on the calceolaria—tobacco-smoke and sulphur fumes, with the use of the syringe, and giving the plants plenty of air. The more "coddled" the plants, the more they are infested with pests of all kinds. The Geranium is subject to a malady called "the spot;" this is a discolouration of the foliage, to which the high-bred sorts are more liable than the old robust varieties. Although the spot will sometimes appear when the plants have been well treated every way, yet it will usually be found that it is a result of damp at the roots, either from the drainage being checked, or from an over-moist state of soil and atmosphere,

Let a time when there is not sun enough to enable the plants to throw off the excess of moisture. Dryness, abundance of air, and whatever promotes a quiet, healthy, and hardy growth, are the preventives and the remedy; the plants affected should be cut down and allowed a complete rest, when the new growth may come quite healthy, though whenever "the spot" breaks out in a collection, it is wise for the cultivator to secure cuttings from healthy stock, and grow these quite apart from those that are diseased, with a view to destroying such as prove incurable; in the meantime preparing plants to take their place. The too early or inordinate application of manure-water will cause spot, so will too rapid forcing, or any cause which loads the plant with crude juices at a time when the foliage is not sufficiently active to elaborate it.

Bedding Geraniums are used by everybody who take a pleasure in gardening, and with many such it is a frequent cause of anxiety how to get their plants safely through the winter. Now though Geraniums will not bear many degrees of frost, there is no plant which goes to rest so thoroughly if encouraged, and hence it is not difficult to preserve them through the winter, even without a greenhouse. In taking them up from beds and borders in October, unleaf every plant, and pot them in the poorest soil you can get. Then consign them to any loft, outhouse, or spare room where they will be dry and protected against frost.

If properly potted, or planted carefully in poor soil in a bed, a shed, or pit, they need not have a single drop of water until the severe frosts of February are past. They may then be repotted in proper soil, and have occasional exposure to warm showers and sun when those touches of early spring surprise us, but be housed at night, and whenever the cold winds or frosts prevail have protection as before. A little care during the latter part of March and through April, will bring them forward well, and in May they may go again to their quarters in the garden.

I usually winter a large number in this way—they are potted into wide shallow pots, half-a-dozen plants together, to save room; in the spring they are shaken out and potted into very small pots; they are ready for a shift at the end of April, and finally

go out in May, but if not shifted till bedding time they do very well, for bedding Geraniums need only to be kept alive, for when once they start in the open ground they grow vigorously, and soon make a fine show. If any go black at the collar towards February, cut off the head at once, and strike it in a gentle bottom heat, and if you can strike a quantity of the most promising of the ripe shoots in a Waltonian Case or a dung pit, the stock may be increased vastly by the beginning of June.

Cold pits suit for many kinds of bedding stock better than for Geraniums, because of the difficulty of insuring perfect dryness; but if kept dry, and with fair protection against frost, Geraniums may be wintered safely without need of a greenhouse,

With a greenhouse there is nothing like Geraniums for gay winter blooms. Struck early, and in the sun, potted early, and as soon as the wood sets a little hard kept moderately dry, at a temperature of from 40° to 45°, with air on day and night whenever the weather permits, with no late shift to check them, and it as easy to have a magnificent show by Christmas as it is out of doors in July. They will really stand a brisk heat, but it is not good for plants in the end, nor is it necessary; a little calculation in good time, and keeping the plants pot-bound towards the season when you would have them bloom, and failure is hardly possible.

LIST OF SELECTED VARIETIES.

TWELVE NEW SPOTTED PELARGONIUMS.

Conspicuum, (Turner,) lower petals rose, top petals rose, shaded off with lilac to the margin; all five petals having a large rich velvety spot of dark maroon. Showy and free flowering.

Spotted Gem, (Turner,) rosy lilac, with distinct dark spots on each petal. Good habit and constant.

Queen of the Fairies, (Turner,) French white, with purple spots. Large flower, free bloomer.

Mr. Beck, (Turner,) rose, with maroon top petals, and spot on bottom petals. Very fine substance, but rather shy.

Mr. Hoyle, (Turner,) warm rosy pink, with maroon spots on all the petals, shaded with bright orange. Very novel and showy.

Sanspareil, (Hoyle,) delicate rose, white centre, crimson spot. Beautiful. Triomphe de la Tour, (Odier,) rosy purple, deep veining and dark blotch. Not very free.

Multiflorum, (Malet,) lilac rose, spotted and veined with maroon.

James Odier, (Odier,) white centre, scarlet rose, shading to violet. Very fine.

Etoile de Jardin, (Odier,) rose and deep crimson. A shrubby dwarf variety.

Colonel Foissey, (Odier,) rose, veined and blotched with crimson. Splendid when well bloomed.

Albira, (Hoyle.) Very free; forces well.

TWELVE NEW FANCY PELARGONIUMS.

Emperor, (Turner,) upper petals black, edged with white, under petals white mottled with rich purple. Fine form, constant, good habit.

Carminatum, (Turner,) upper petals rich carmine, edged with white, lower petals flesh, mottled with crimson. Rather shy.

Mrs. Colman, (Turner,) rich purple, with white throat and edges. Good form and habit, very free bloomer.

Helen Faucit, (Turner,) upper petals dense crimson, with lilac edge, under petals lilac, mottled with crimson. Good form.

Madame Rougiere, (Turner,) rich crimson purple, with light throat and edges. Robust habit, quite new in colour, a good show flower.

General Pelissier, (Turner,) upper petals deep maroon, edged with lilac, lower petals flesh, mottled with purple. An improved "Advancer."

King, (Turner,) upper petals violet crimson, lower petals flesh, mottled with crimson. Large, and very showy.

Countess of Abingdon, (Turner,) upper petals light crimson, under petals mottled with lilac, white throat. Not free.

Sir Joseph Paxton, (Turner,) upper petals rich purple maroon edged with lilac, under petals light lilac, suffused with purple. Fine form and substance.

Jenny Ney, (Turner,) rosy violet, with white throat and edges. A very showy flower.

Omar Pacha, (Turner,) bright crimson. Very free and robust habit, a good show flower.

Crimson King, (Turner,) a vivid crimson purple, with lilac centre and edges. Very dwarf and showy; splendid for forcing.

TWELVE FIRST-CLASS OLDER FANCY PELARGONIUMS.

Beauty of Slough, (Turner,) deep bright rosy crimson, margined with white, white centre. Fine form and substance.

Bridesmaid, (Turner,) delicate pale lavender, edged with white. Fine form and habit; a fine show flower of quite a new colour.

Cloth of Silver, (Henderson,) silvery white, with delicate rose blotch, under petals pure white. A fine variety for exhibition.

Cassandra, (Ayres,) crimson and white. Fine form.

Celestial, (Ayres,) bright light rose. Fine.

Lady of the Lake, (Turner,) crimson, with violet lilac margin, under petals clouded with purple. A good show flower.

Lady Hume Campbell, (Henderson,) bright scarlet crimson, lilac centre.

Madame Soutag, (Ambrose,) upper petals of a rich crimson purple,
with light margin, lower petals pencilled with lilac, the throat pure
white. A fine show flower.

Purpureum Album, (Turner,) rich purple, edged with white, white centre. Good form and habit.

Prima Donna, (Turner,) white centre, upper petals violet purple, margined with white, lower petals pure white, spotted with purple. Of fine form and good habit.

Queen of Roses, (Turner,) beautiful warm rose, suffused with lilac, light edges and centre. A fine variety for exhibition.

Resplendens, (Ambrose,) crimson scarlet, with white.

TWELVE FIRST-CLASS SHOW PELARGONIUMS, EARLY BLOOMERS.

Admirable, (Turner.)

Agnes, (Hoyle.)

Conqueror, (Beck.)

Emperor, (Beck.)

Fair Ellen, (Story.)

Governor General, (Hoyle.)

King of Scarlets, (Turner.)

Leah, (Beck.)

Lord Raglan, (Hoyle.)

Marvellous, (Hoyle.)

Review, (Hoyle.)

Viola, (Hoyle.)

TWELVE FIRST-CLASS SHOW PELARGONIUMS, LATE BLOOMERS.

Bianca, (Hoyle.) The finest white.

Beatrice, (Hoyle.) Phaeton, (Hoyle.)

Eugénie, (Hoyle.) Prince of Prussia, (Turner.)

Floretta, (Hoyle.) Saracen, (Foster.)

Gem of the West, (Fuller,) Standard, (Hoyle.)

General Williams, (Turner.) Symmetry, (Foster.)

SIX NEW VARIEGATED-LEAVED GERANIUMS OF FIRST CLASS.

Alma, (Turner.) An improvement on Flower of the Day, very white margin, and good trusses of scarlet flowers.

Culford Beauty, (Grieves,) rich sulphur edging, good trusses of orange scarlet blossoms. A fine variety for edgings and vases.

Hotel de Cluny, (Elphinstone,) silver margin, with some red bordering the green part of the leaf, flower bright cerise, with white eye. An improvement on Lee's Attraction.

Fontainbleau, (Elphinstone,) large foliage, centre green, rosy red circle and white margin, fine trusses of cerise pink. Quite a novelty.

Lady of Loretto, (Elphinstone,) centre of leaf pale green, with zone of brown red, flower bright cerise, with white eye.

Silver Queen. An improved Lucia Rosea; very effective as an edging to beds, and by comparison with many of the best variegated sorts, it carries the day for boldness of character.

FOURTEEN FIRST-CLASS OLDER VARIETIES.

Attraction, (Kinghorn.)

Annie, (Kinghorn.) An improvement on Silver King, with bright scarlet flowers.

Brilliant, (Osborn.) A very free-blooming deep scarlet variety.

Countess of Warwick, (Kinghorn,) dark horse-shoe foliage with white margin.

Dandy. A dwarf-growing small-leaved variety for edges of beds.

Fairy Nymph. An improvement on Mrs. Lennox.

Flower of the Day.

Golden Chain.

Lady Cottenham, gold foliage.

Mountain of Light.

Mountain of Snow, large foliage, with broad white margin.

Mrs. Lennox.

Mangles' Variegated.

Variegated Tom Thumb (vecedingly dwarf habit, and very free bloomer,

TWENTY-FOUR OF THE BEST SCARLET AND HORSE-SHOE GERANIUMS.

Attraction, bright scarlet, good shape and very large truss, dwarf habit, and a most profuse bloomer. First-rate for bedding.

Amazon, a strong grower, with large globular truss.

Baron Hugel, (or Princess Royal,) very dwarf, with horse-shoe foliage, bright scarlet flowers, with a white centre.

Bishopstowe Scarlet, dark scarlet.

Compactum. Splendid bedder.

Commander-in-Chief, orange scarlet. Fine,

Dazzle, bright scarlet. Fine.

Eclipse, (Perry,) compact habit and fine form, producing large trusses of bright scarlet flowers, with a clear white eye.

Emperor Napoleon, a good dwarf scarlet variety.

Fleming's Orange Scarlet.

General Simpson, (Speed,) brilliant orange scarlet, with large white eyer fine shape, large truss, and a dense bloomer. An excellent bedding variety.

General Pelissier, (Kinghorn,) a fine variety, large trusses of orange scarlet flowers, with variegated footstalks.

Glow-worm, a bright scarlet, of Tom Thumb habit, but better.

Judy, pale salmon scarlet. Fine.

Koh-i-Noor, bright scarlet. Fine.

King of Scarlets, bright scarlet. Very fine.

Lady Downes, (Turner,) rosy carmine, good shape, and large truss.

An abundant bloomer, of dwarf habit, and a capital variety for bedding. Quite distinct.

Lord Raglan, deep orange scarlet.

Life-Guardsman, dark scarlet, white centre, good truss.

Rosy Morn, (Turner,) deep cerise, with horse-shoe foliage, good form and truss. Fine.

Royal Dwarf. One of the very best for bedding, very large truss, fine bloomer, dwarf habit.

Spitfire, (Turner,) brilliant scarlet, fine form, and deeply-marked horseshoe foliage. Very dwarf and distinct.

Sutton's Scarlet Perfection. Capital for bedding.

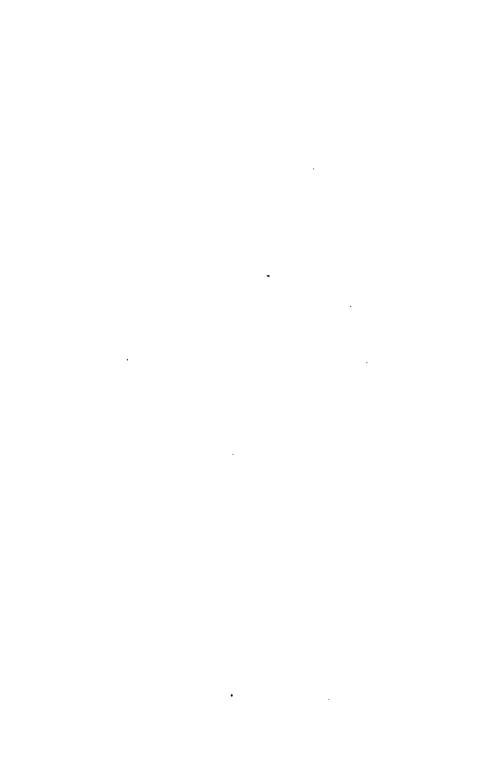
Tom Thumb. A well-known sort; market growers sell many inferior varieties under this name.

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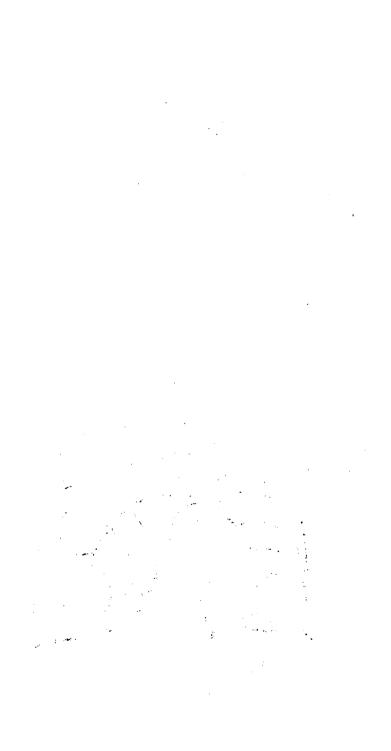
Duchess of Satheria a.

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Devomensis.



GARDEN FAVOURITES.

THE

R 0 S E:

ITS

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

BY SHIRLEY HIBBERD,

Author of "Rustic Adornments for Homes of Taste," etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON: GROOMBRIDGE AND SONS, PATERNOSTER ROW. M DCCC LVII.



THE ROSE.

CHAPTER I.

"THERE'S a bower of Roses by Bendemeer's stream,
And the nightingale sings to it all the day long;
In the time of my childhood 't was like a sweet dream
To sit in the Roses and hear the birds' song.
That bower and its music I never forget,
But oft when alone in the bloom of the year,
I think—is the nightingale singing there yet!
Are the roses still bright by the calm Bendemeer!
No, the roses soon withered that hung o'er the wave,
But some blossoms were gathered while freshly they shone,
And a dew was distilled from their flowers, that gave
All the fragrance of summer, when summer was gone."

MOGRE.

BOSE LORE.

High summer, and nature holding a truce with the elements! High summer, and every form of life in full perfection, while mother earth presides at her annual feast of flowers. High summer, and man happy in the midst of umbrage, where the air creeps in softly, cooled in filtering through the leafiness, and made odorous with the breathings of bloom and greenness everywhere. High summer, and the sun exalted to his highest in the heavens,—emblem to mortal eye of the Invisible Dispenser of every seasonal blessing;—the meadows dotted with odorous haycocks, the wheat-fields rolling in billows to every gust, as if the green ocean had usurped the land, and brought upon its shining foam vast promises

of plenty; the mossy woodside, the sandy waste, the dark forest, and the shrubby hedge-row, all spangled as with stars

"That in earth's firmament do shine."

This is the Carnival of flowers; the bramble is in its prime of blossom, and the Wild Rose—chief in the coronal of summer—is glorious in its lust of bloom and wealth of fragrance. Its very name is poetry, its history a romance.

When the sunbeams shone with a warmer glow, And the honied bells were sipped by the bee, Could the woodlands a lovelier garland show Than the wreath that hung on the wild-briar tree,

The Rose is Queen of flowers, the emblem of beauty in its highest developments, the sign and type of summer, yet known to every season, and almost every clime. It is the special pet of the poet, and has helped inspired bards to many noble tropes and fine comparisons. It has always been a symbolic flower; in the East it has been made the representative of virtue and loveliness: the half-expanded Rose-bud was the type of love dawning in its first sweet promise, and the full-blown flower was an emblem of the ripened passion which makes the heart a shrine consecrate to every patriotic and domestic virtue. With the Egyptians it was a symbol of silence, and Harpocrates was crowned with a garland of its blossoms. The Greeks wove it in their nuptial and funeral garlands, and in the chaplets of the magistrates; and Pæstum suggested many a noble lay and dazzling metaphor to the classic writers who were familiar with its roses—the most famous of any in the world. In the profuse use of flowers by the Romans, the Rose was highly prized. No banquet was complete unless flowers formed a special feature of the feast; thus Horace-

"Here let the Rose and lily shed
Their short-lived bloom; let parsley spread
Its living verdure o'er the feast,
And crown with mingled sweets the guest.
LIB I., 36.

And again in an ode to Dellius:-

"Here pour your wines, your odours shed,
Bring forth the Rose's short-lived flower,
While fate yet spins thy mortal thread,
While youth and fortune give the indulgent hour."

Indeed for every procession they strewed the streets with flowers; the peasantry went garlanded to every festival, and we may be sure the Rose was chief among the fragrant trappings with which those old flower-loving heathens so frequently adorned themselves. This use of the Rose as an accompaniment of feasts, gave rise to the saying "under the Rose;" they who wore it during convivial converse pledging their faith that what was said sub rosa, should "go no farther." It is from this that the German custom of Painting a Rose on the ceiling over the dining-table arose. Appetitus, in "Lingua," a comedy of 1657, says, "Crown me with no crown but Bacchus' crown of Roses."

The dedication of the Rose to Harpocrates by Cupid, is described in the old epigram—

"Est rosa flos veneris, cujas quo facta laterent. Harpocrati matris dona, dicavit amor. Inde rosam mensis hospes suspendit amicis; Conviva ut sub dicta, tacenda sciat."

Newton, in the "Herbal to the Bible," 1578, says of the continuance of this custom, "they use in parlours and dining-rooms to hang Roses over their tables, to put the companie in memorie of secrecie, and not rashly or indiscreetly to clatter and blab out what they hear—protesting that all was spoken under the Rose."

But the Rose was not devoted to festive uses alone; the ancients Prized it as a funeral flower, for in old times the graves of loved ones were decked with all manner of sweet herbs and flowery garlands, nor could the manes be gratified but by such delicate oblations. Thus both Sophocles and Euripides make Electra weep that her father's tomb had no libations, and no garlands.

-----"Nor with myrtle boughs

Were my dear father's manes gratify'd."

EURIPIDES—ELECTRA.

Indeed Anacreon makes the comfort of the dead in the grave dependant on the presence of the Rose upon it:—

"When age and vigour do decay, The Rose their strength repairs; It drives all maladies away, And can prolong our years.

The dead, too, in their graves do lie
With peaceful slumbers blest;
This is the amulet, hereby
No ills their tombs molest."

It is worth remembering that the tomb of Achilles was decorated with amaranth, the urn of Philopemen with chaplets, and the tomb of Sophocles was garlanded with ivy and Roses, for the beautiful epitaph by Simonides asserts as much:—

"Wind, gentle evergreen, to form a shade Around the tomb where Sophocles is laid; Sweet ivy, wind thy boughs, and intertwine With blushing roses and the clustering vine. Thus will thy lasting leaves with beauty long Prove grateful emblems of the lays he sung."

Homer, Euripides, Virgil, and Milton, were all enamoured of the Rose. Vitruvius considered it the best ornament for a Corinthian capital, and the temple of Solomon was decked with a profusion of flowers cut in cedar wood, and the sarcophagi of the kings of Judea were adorned with foliage and flower-work, in imitation of the indigenous plants of Palestine. When the body of Hector is about to be disgraced, Homer makes Venus forbid the act, and shed over him "roseate unguents." Milton boldly compares a solemn sound to a perfume:—

"A solemn breathing sound Rose like a stream of rich distill'd perfumes, And stole upon the air."

But while Homer dealt severely with such enervating agents as perfumes, not allowing them to any of his heroes but the effeminate Paris, Virgil associates them with heroic acts, and makes Æneas sprinkle his father's grave with purple flowers:—

"Eneas then advanced amid the train,
By thousands followed through the flowery plain,
To great Anchis's tomb; which, when he found,
He poured to Bacchus, on the hallowed ground,
Two bowls of sparkling wine, of milk two more,
And two (from offered bulls) of purple gore.
With Roses then the sepulchre he strewed,
And thus his father's ghost bespoke aloud."

ÆNBAB V.

It is not surprising that a custom so highly poetical should have survived to this day. In our new and beautiful cemeteries. which truly merit the German appellation of "God's acre," compared with the old crowded town churchyards where it seemed a sacrilege to place the dead, we do but perpetuate a highly classic usage in our free use of flowers. The Christian fathers enjoined the decoration of graves as a duty; crowns of snow-white flowers were placed upon the graves of virgins, and upon those of wives and husbands, baskets of lilies, violets, and roses. In many of the villages of Derbyshire, the primitive custom still prevails of suspending wreaths of white Roses in the churches, over the pews of unmarried villagers who died in their youth; and in not a few quiet hamlets of green England are Roses still carried with rosemary, yew, and sweetsmelling herbs, in funeral processions; and while the pallid face still rests on the bier waiting for burial, the cold hands are made to clasp such touching emblems of the fleetness of life and the sure resurrection, which after the winter of the grave, shall break like spring upon the body glorified.—

> ——"The cold flowers her colder hand contained, In that last grasp so tenderly were strained, As if she scarcely felt, but feigned a sleep, And made it almost mockery to weep."

Then what stories of love, hope, and weeping, can the Rose relate to us. Who does not remember the fatal Roses of York and Lancaster, and Stuart, with a joyful heaving of the heart, at the thought that civil war and anarchy are now impossible in Britain, for its bonny hedge-rows and its fruitful gardens, where the Rose is the presiding grace, represent the heartiness of its people, the wealthiness of its institutions, and, old as it is, its ever-

green youth in the growth of liberty, wealth, and intelligence. May the ROSE OF ENGLAND—Queen, Wife, Mother—continue to flourish in the sunshine of a long prosperity, reverenced by the world, blessed with the grace of God, and assured of the homage of a loyal and a loving people. Though it is *Old* England, the strength of youth survives in it, for

We own a God who guards this hallowed ground Bulwarked with martyrs' bones, where fear was never found.

Every nation has its Rose memorials. The Persians—masters of flower lore—have many pretty legends in which this their favourite flower plays chief part, of which here are three of the best:—

"As this dark mould sends upward and out of its very heart the rare Persian Rose, so does hope grow out of evil; and the darker the evil the brighter the hope, as from a richer and fouler soil comes the more vigorous and larger flower." * * * "A traveller, in passing through a country in Persia, chanced to take into his hand a piece of clay which lay by the wayside, and to his surprise he found it to exhale the most delightful fragrance. 'Thou art but a poor piece of clay,' said he, 'an unsightly, unattractive, poor piece of clay; yet how fragrant art thou! how refreshing! I admire thee. I love thee; thou shalt be my companion; I will carry thee in my bosom! But whence hast thou this fragrance?' The clay replied, 'I have been dwelling with the Rose!'" Another Persian legend represents the slave Sadi presenting his master with a Rose, saying, "Do good to thy servant whilst thou hast the power, for the season of power is often as transient as the duration of this beautiful flower." Whereupon the heart of his lord was melted to compassion, and the slave obtained his liberty.

> If bliss be a frail and perishing flower Born only to decay; Oh! who, when it blooms but a single hour, Would fling its sweets away.

But we must leave unsaid a hundred things that might be said about Rose festivals, and Clemence Isuare and her gay societie, and the various legends that attach to the uses of the Rose in heraldry. After all, the culture of it is our chief matter now, and we shall close this chapter, too short for the subject, but too long for the book, with one of Leigh Hunt's prettiest of flower songs, which may be new to some, certainly welcome to every reader:—

"We are blushing Roses

Bending with our fulness,
"Midst our close-capped sister buds
Warming the green coolness.

Whatsoe'er of beauty
Yearns and yet reposes,
Blush, and bosom, and sweet breath,
Took a shape in Roses.

Hold one of us lightly,—
See from what a slender
Stalk we bower in heavy blooms,
And roundness rich and tender.

Know you not our only
Rival flower—the human?
Loveliest wight on lightest foot,
Joy-abundant woman."

CHAPTER II.

WILD Rose, Sweet Briar, Eglantine,
All these pretty names are mine;
And scent in every leaf is mine;
And a leaf for all is mine;
And the scent—Oh! that's divine!
Happy sweet, and pungent fine,
Pure as dew, and pick'd as wine.

LEIGH HUNT.

THE BOTANIST AMONG THE ROSES.

Roses have a special interest for the botanist. The order Rosaceæ, of which the Rose is the type, is one of the most important in the natural system, and in the system of nature too it is equally important. In its economic aspect it stands parallel with Gramineæ, or the grass family, for while the last

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provide pasture and bread, the great necessities of staple food, the Roses furnish the most noted and most delicious fruits, to complete the banquet set before man by his merciful and provident Father. If we take a wild Rose, and notice the disposition of its five petals, and the five sepals that form the green cup of the flower; and on pulling it to pieces observe how the receptacle is dilated so as to form a lining to the lower part of the calyx; the ovary being filled with hard pips of a wholesome character, we are ready to understand how it is that botanists group with the Rose many of our most noted fruits. Take the



blossom of the bramble, and you will find that it is in every respect a Rose; the points of difference, though slight, are rather confined to the production of the fruit than the flower. The same with the strawberry, raspberry, apple, pear, cherry, plum, apricot, peach, and almond. How close as to structure and general character is the resemblance between the wild Rose, with its gauzy blossom and orange-red hips, and the hawthorn, with its fragrant white blooms and coral haws. Examine the individual flower of each, and you see at once that they are allied in make and fashion, and are close relatives. The same with the pretty tormentil, the potentilla, the herb Bennett; and numerous and different as are the members of the family, the difference

is chiefly as to the mode in which the seed is produced.

In the Rose, the pitcher-shaped part of the calyx becomes the hip, which forms a covering to the bony carpels, which are enveloped in down. In the strawberry the mere expansion of the receptacle after the fading of the corolla forms the eatable fruit, and similar bony carpels are produced; while in the raspberry the receptacle becomes elevated into what is called a torus, and the carpels upon it become the pulpy pips which form the fruit, which, when separated from the stalk, leaves the receptacle firmly attached, with the calyx at its base. Thus our first of garden favourites is well-connected, and the family ties of its kindred are readily discernible—is not an apple blossom, just opening, one of the most delicately-tinted, leatly-formed Roses that a tasteful eye can contemplate—the airies may indeed drink May dew from such a cup as that.

The true Roses form the first tribe in the great order Rosacea: nder the name of Roseæ. The tribe contains but two genera. Lowea, the latter containing only what was formerly alled Rosa berberifolia, and which was made into a separate Onus on account of its simple leaves, without stipules and ranched prickles. There are more than two hundred species, and the manipulations of the florist have multiplied these into bousands of varieties; vet the botanical characteristics remain atact: the most doubled flowers retain many of their original Lements: the very distinct foliage of all kinds of Roses is easily ecognisable; the sets of pinnate leaves, ending with an odd one, and the leaves being furnished with stipules. The prickles on he stem of a Rose illustrate the difference between thorns and oriars—in the briar they are articulated, and when removed the park is not wounded, a mere scar marking the place of the removed prickle; but a thorn proceeds from the true wood, and its removal causes a wound.

In the "Flora of the Colosseum," * by Dr. Deakin, only one species, R. sempervirens, the Evergreen Rose, is noted as being found on those remarkable ruins, and on this species Dr. Deakin

[•] This is an extraordinary work, containing illustrations and descriptions of four hundred and twenty plants found growing spontaneously upon the ruins of the Colosseum of Rome. It is full of anecdote, and bright with scholastic polish.

130 THE BOSE.

says:-"From the account of Pliny, it appears Roses were esteemed, and considerably cultivated by the ancient Romans. He mentions several sorts of those which are fragrant, and others that are inodorous; and he gives some hints as to the nature of the soil best suited for them, and the mode of their cultivation. But now the modern Romans seem to pay less attention to their cultivation; for though long formal garden-walks are commonly planted with hedge-rows or screens of Rose trees, it is mostly only the common China Rose which is planted. shrubs of the various species of Roses vary in size from a few inches to many feet long; the flowers vary in colour from red to every shade of pink and purple, yellow and white, or striped; and they are simple, semi-double, or double. The medical properties which they possess is that of a slight tonic and astringent; but it is on account of the beauty of the flowers, and the delicate odour which they exhale, that the Rose is, and from the earliest period has been, held in the highest esteem." What a contrast to its former magnificence, where luxury held its cruel festivals, the Wild Rose takes possession, and makes holy ground of the marble that has been stained with a thousand iniquities!

Cypress and ivy, weed and wallflower grown
Matted and massed together; hillocks heaped
On what were chambers; arch crushed, column strewn
In fragments; choked-up vaults; and frescores steeped
In subterranean damps, where the owl peeped.
Deeming it midnight:—temples, baths, or halls?
Pronounce who can; for all that learning reaped
From the research, hath been, that these are walls—
Behold the Imperial City!—Thus the Mighty falls.

CHAPTER III.

The Rose is fairest when 't is budding new,
And hope is brightest when it dawns from fears;
The Rose is sweetest wash'd with morning dew,
And love is loveliest when embalm'd in tears.

SCOTT.

GENERAL NOTES ON CULTIVATION, SOIL, PLANTING, AND SECRETS OF SUCCESS.

How many folks fail in their efforts at Rose culture! How lists are made out, soil prepared, and all the preliminaries settled from the paying to the planting, and yet they will "go off," and just at the season they are most wanted horrid gaps occur, and a whole season's show is marred, and no one can tell the reason why. Well; the choicest pleasures are dashed with occasional pains, the higher you aim the greater the risk of missing the mark, and if you really want Roses you must go the right way work, for they are just the things that refuse to be cultivated whow.

This chapter is to deal with ordinary Rose culture, but with one of the operations involved in propagation, budding, or electing Roses, and it supposes the cultivator to be already in Possession of his plants, whether on their own roots or on stocks, and simply desiring to know how to plant, preserve, and bloom them bravely. Roses are now and will be for some time to come in their full lustre; now make your choice at the nurseries, taking the nurseryman's advice as to the sorts that will suit your soil, situation, space, and means, but using your own judgment as to the sorts that please you. Let lists be ever so complete or discriminate, there is nothing like seeing the plants in bloom, that you purpose to become possessed of. Then how will you plant them, and in what sort of soil? Let us consider.

The Rose is as luxuriant in its habits as in its beauty. It

will not be starved, and it will disdain shabby treatment of every kind. It thrives in greatest perfection on a deep, strong. well-drained loam, and that must be liberally enriched with thoroughly-decayed manure. As the Rose is somewhat of a gross feeder, any of the stronger manures may be advantageously employed in its cultivation, pigs' dung, night soil, super-phosphate of lime, and stable dung, but fresh manure of any kind ruins it speedily. The dung must be well rotted and perfectly sweet. and it must be thoroughly incorporated with the soil before the Roses are planted. But it does not follow that even if the soil of the garden is a deep strong loam, that therefore Roses are sure to succeed on it. Leaving out the questions of aspect and climate, it is more a matter of actual experience than calculation, as to whether Roses will flourish in any particular spot, however well the soil may appear fitted for them. Roses must be tried on the soil, and until actual experience has proved its fitness for them, choice expensive kinds should not be planted in it. This point, however, is not often a difficult one to settle, for the mere observation of the condition of Roses in neighbouring grounds where the soil is of the same character, will generally determine what may or may not be done; but the fact should not be lost sight of, that there is no mode of prejudging by the mere texture, depth or character of the soil, even in conjunction with climate and situation, to what extent the spot is adapted for Rose culture.

But supposing that you possess a deep strong loam, the first point is to ascertain the state of the drainage. Though Roses are as fond of water as any of the choice garden plants we have, they will not endure to have it stagnate about them. The continuous winter rains lodging in a tenacious soil ruin them at the root, and devastate the collection; and unless there is a good natural drainage, means must be artificially devised for carrying off quickly all superfluous moisture. In laying out a Rosary the proper drainage of the soil would be the first consideration, and an efficient arrangement of drain-pipes would be the best mode of effecting it, unless, as just remarked, the sub-soil was of a character such as to render artificial drainage unnecessary. In growing them on a small scale in beds and borders, it

would be as well to take out the soil three feet deep, then to lay down one foot of building rubbish, and above that two feet of soil for the roots; the most copious waterings and the heaviest rains would then be attended with no danger.

Supposing the soil to be unsuitable, there would be great caution necessary in making the selection, and however carefully the selection may be made, it will still be necessary to improve the soil by any means available. The top spit of a pasture, especially of a loam inclining to clay, would be just the thing to cart into the compost yard, and lay up for Roses. If turned once or twice for a season, and then incorporated with a liberal allowance of well-rotted stable dung, or the clearings from cucumber and melon pits, or with dung from a sheep-walk. gathered six months previously, it would form an admirable material in which to cultivate Roses. This would have to be used according to the nature of the land requiring improvement. On a soil unfit for Roses merely because exhausted and poor, a layer of six inches turned in would perhaps be sufficient, especially if every year afterwards the plants had a dressing of dung; or if a few Roses were wanted on a lawn in a soil too lean or hungry for them, holes might be dug two feet deep and two feet across, and filled up with such soil, and the Roses planted in them. In any case the soil ought to be brought to such a condition as to be fit to grow wheat or hops. and a good wheat soil is the very stuff in which Roses are pretty sure to delight themselves and their proprietors.

When the utmost has been done to improve the soil, it may still be quite unsuitable for many of the choicer kinds, and where there is any reasonable cause for doubt it would be rash to plant extensively, and especially with expensive sorts—in fact it is not possible to decide to what extent Roses may be grown on even the best soils until the thing has been tried, and therefore on one which bears the appearance of unfitness, let actual experiment determine before you risk much in the adventure. Many Roses will make a good start in soils quite unfit for them, and when the first flush of youth is over they go off, and become worthless, or die outright; and on the best of soils for general purposes there are some sorts that refuse to

make themselves "at home." Where Gloire de Rosamene does well, you are pretty sure to find that La Roine turns consumptive, and vice versā. Mrs. Elliott is another that you cannot make sure of at all times let the soil be what it may; nevertheless, in spite of such exceptional cases, those who love Roses should take heart and wise counsel, and persevere cautiously, and there are but few spots in the whole area of the British Isles, where skill and patience will not succeed.

In the planting of a dry sand with Roses, those worked on Dog Rose stocks are pretty sure to fail, for the Dog Rose demands a cool, moist, rich loam; sand or any kind of loose shifting soil it abominates. Here it is that Roses on their own roots prove especially valuable, though the old Cabbage and Moss Roses, whether on their own roots or worked, are sure to fail in it. Hybrid perpetuals on their own roots are very accommodating, and when an uncongenial soil has been made the best of, those are the Roses to risk upon it. Indeed, wherever there is a doubt about the suitability of a soil, Roses on their own roots are to be preferred, for those that are worked are in an artificial condition, and less able to battle with adverse influences than such as from head to foot are "all of a piece," and carry their sap in continuous currents, the warfare between stocks and inserted buds being often greater than appears for a time, and even if trifling and of no moment when all external influences are favourable, every unfavourable circumstance aggravates it. and a had soil most of all.

The other extreme of a heavy, wet clay bottom, is to be met by an opposite practice in planting. Dog Roses bear the effects of a wet bottom better than choice Roses on their own roots, and if worked with strong-growing Roses that otherwise would not survive on such a soil, the strength of the stock and its love of moisture will enable them to endure it; and Cabbage Roses on their own roots will be the best kinds for dwarfs, because they also can fight against stagnant water better than most other kinds. Still, if you want Roses to flourish and to last, you must secure the best possible drainage, and provide two feet of rich, strong, hearty loam for every Rose root you intend to plant; they like to bite the ground firmly; they like good

living, as all showy people do; and the only royal road to the Rosary is in securing as far as possible the conditions which experience proves to be requisite.

As to situation, Roses do not bear exposure well; they like shelter and sunshine. A south-east aspect is the best; at all events they must be protected from the cutting east blasts that tell so severely against vegetation of all kinds in early spring. In open grounds, beech, yew, or hornbeam hedges are good screens, but they do not bear the drip of trees well, and need a full circulation of air about them to keep them healthy.

The best season for planting is the early part of November. but when it is not convenient to plant then, they may be safely put in as late as March. I have frequently moved Roses late in April, and have had them break well at the beginning of June, and get hearty in time to be gay all through the autumn: but there is nothing like early planting; it is the only safe course: and whenever planted, they should be kept out of the ground as short a time as possible. Quarter-day has a good deal to do with gardening matters, and the wise gardener, when "on the move." fixes on Michaelmas as the safest season for the transference of his stock. At that time Roses of all kinds may be transplanted safely, even though full of leaf and covered with bloom; but they should be first pruned in closely, and the branches that remain should be disleafed. I have seen Roses moved at the end of August, being first pruned and stripped bare, and do well. but November is the season; every week before or after that time is too soon or too late for the insurance of a good result.

When Roses are ordered from a nursery, everything should be ready for their proper planting as soon as they come to hand. If they have been some time out of the ground, make a puddle of earth and water, of the consistence of paint, and as you unpack them dip each root into the puddle, and plant immediately. You will, of course, have already determined how they are to be arranged in the ground. In a long narrow border, the tallest standards will form the back row, the next size will stand before them, the half-standards before those again, and the dwarfs in front of all. Choose a fine day for planting, if possible, the drier the ground

the better; if the soil is loamy, manure it well, if otherwise, make holes two feet deep for every plant, and fill each hole with two-thirds turfy loam, well chopped up with one-third rotten dung, (previously prepared for the purpose, of course,) and plant in that. Roses on their own roots like the soil a little lighter; the China and Tea-scented Roses especially prefer a soil a shade lighter than would be best for other sorts.

In planting, examine the roots carefully, and remove all suckers. and cut away with a clean sharp knife every portion of root which has been injured, and, above all things, do not plant them an inch deeper than they were before; the more the roots can be kept near the surface the better. If all things are well done the Roses will flourish for many years without need of change of soil: but, with the greatest care, sometimes dwarf Bourbons Tea-scented varieties, and China Roses will fall back and get unhealthy, when the only remedy is to take them up in No vember, shake all the old soil off them, and re-plant in fresl compost, after searching the roots well, and cutting away al suckers and decayed portions. If any grow too vigorously root-pruning may be adopted. Take a sharp spade, and cur clean down all round and under the plant in a circle eighteen inches from the stem, and reduce slightly the annual dressing o manure.

Early in spring, just as the Roses begin to break, fork ove the surface, and remove the top-soil round each plant, and lay down a thin layer of manure as a top-dressing, over which draw the soil that was removed to make room for it. Most perpetual will be benefitted by another similar dressing immediately afte the first bloom is over; and if the weather should be dry, two rethree good waterings should be given, to carry the soluble parts of the manure down to the roots. Where it is not convenient to give such a dressing, as on lawns for instance, liquismanure should be used a little stronger and more frequently just after the first bloom, but weaker and continuously till the middle of August. At the time of planting, every Rose of two feet high and upwards should be secured to a stake.

CHAPTER IV.

"STILL are thy green leaves whispering
Low sounds to fancy's ear, that tell
Of mornings when the wild bee's wing
Shook dew-drops from thy sparkling cell!
In April's bower thy sweets are breath'd,
And June beholds thy blossoms fair;
In Autumn's chaplet thou art wreath'd,
And round December's forehead bare."

ANSTER.

PRUNING, DISBUDDING, AND SEASONAL MANAGEMENT.

MANY who grow Roses, and who bud and graft them, and know their minutest differences of character, are yet very nervous when they come to the pruning, and too often a jobbing gardener. who prunes all things alike, from a grape vine to a gooseberry bush, is called in to hack them at his pleasure, and so they are all cut in alike, or nearly so, to three buds and three leaders apiece. I would urge the amateur grower of Roses to practise every minutize of cultivation, for, except the trenching and manuring in the first instance, there is not a single manipulation in Rose culture but affords recreation in which a lady or gentleman may take delight: then how pleasing the remembrance of our efforts. when the results are all before us, and every blossom breathes its thanks for the skill and care which have helped it into bloom, Pruning is the most important matter we have to deal with in the general management of Roses; it is very easy to make mistakes. and it needs patient experience to acquire skill in the use of the pruning-knife.

Any one who takes note of the varying habits of Roses, and the manner in which they produce their bloom, will soon acquire, as if by instinct, a clear insight into the art of pruning. Supposing, in the first place, that you have young plants from the nursery in the first year of planting, you must prune them very close to induce equal growth and the formation of neat bushs

heads. Almost all kinds, the first season, require shortening to two or three buds, and the buds left should be those that are well placed for the summer growth, having an outward direction, and as symmetrically placed in situation to each other as possible. All weak and unnecessary shoots should be removed, and the head left open, and with its remaining buds so placed that the summer growth will be regular and close, spreading from the centre. The reason why Roses are not pruned in winter, as many trees and shrubs are, is, that pruning hastens the breaking of the buds left, and if these break too early, they are apt to suffer from frosts, and the plants are for a long time weakened, and the blooms come late and poor; hence autumn and spring are the principal seasons for such work.

As the spring growth proceeds, the cultivator must occasionally look over the stock for the purpose of disbudding such as require it. Every bud or shoot not taking a proper direction should be rubbed off as soon as it appears, and if shoots cross each other, or make way into the centre of the plant, they should be cut close off, and the well-placed shoots will grow all the more vigorously, and the blooms be finer and more abundant.

In the spring-pruning of established Roses, the first thing necessary is to thin out from the head all the small and unripened shoots, and such as have grown irregularly, leaving the strongest at equal distances from each other; the shoots of stronggrowing sorts may be thinned to four or five inches apart, and the best shoots left from six to twelve inches long, according to the age of the plant, its habit of growth, and the strength of the shoots cut in. The weaker the shoot, the closer it must be cut, and the weaker the plant, the fewer shoots must be left to consume its sap; and every cut should be made back to a strong well-placed bud. The shoots that are entirely removed must be cut clean away at their base, and the wound will heal over during the summer. February and March are the seasons for the spring pruning, and the more tender the variety, the later must the pruning take place. Tea-scented, China, Noisettes, and Bourbons must be deferred till April; but French, Moss, and Provence may be pruned early; Hybrid Perpetual and Hybrid Bourbon next: and the tender kinds last of all.

The summer pruning must be done cautiously, for severe pruning at a season when the sap flows freely and abundantly, will give such a shock to the plants as to cause them to throw up suckers or joints from the stock below the head, in an effort to get rid of the superfluous sap thrown upon the root by a too sudden removal of growing branches. Suppose some of them produce long rods disproportionate to the character of the tree-a thing that will frequently happen to vigorous plants in good ground -it would be unwise to cut such branches close off, but you may nip out the points of such shoots, and let them remain till autumn, and then cut them clean off. If the growth is regular and crowded, thin out at once such shoots as seem superfluous, cutting them clean to the base, but do not stop any of those left, or they will be likely to throw out a good deal of side-spray that will soon cause the trees to be as crowded as before, and beside that, the next season's blooming will be prejudiced.

We come now to autumn pruning. This must be performed in a regular business-like manner; it is to be no mere trimming and shaping up, as much of the summer pruning is, but a definite adjustment of the wood that is to remain for the next spring's All Summer Roses, as the Moss, French, Provence, and Damask, must be regularly thinned out, and, according to the character of each variety, the shoots should have from four to six eves each. Most of the French Roses are strong growers, and frequently make long rods that are green and pithy, which should be cut clean out, and the remainder of those best ripened to a foot or more, according to their strength. Perpetuals, whether Damask, Hybrid, or Moss, should have a third of the shoots cut clean away, and the rest shortened to four or five eyes; the shoots removed should be those that are ill-placed, weakly, or of too rampant a growth for preserving the general symmetry of the head. A few of the early-blooming and hardiest varieties may be pruned as late as November, and they will bloom a week earlier than those pruned in spring.

There are many Roses, however, which require special tact in pruning, and I shall here enumerate such as occur to me as requiring special note, giving the name and mode of pruning each in the fewest possible words.

140 THE ROSE.

Austrian Briars are a very decided exception; they produce their blooms at the end of the shoots of the previous summer's growth, and if cut in spring, the blossom-buds would be removed, and there would be no bloom that season. Prune them immediately after they have done blooming, and they will produce new wood sufficiently early to ripen for bloom-buds before winter; in the spring following, go over them and thin out the head carefully, in order to preserve its shape and subdue over-luxuriance. Another plan is, where several plants of each variety are grown, to prune every other plant closely in spring, and leave the other half to bloom, and prune those that bloomed in the spring following; thus they will bloom alternately. The first season of planting, shorten them down to five or six buds each shoot.

Climbing Roses require very judicious pruning, so as to induce an equable growth of spurs or side-shoots to cover the spaces against which they are planted. During the summer, train in the young shoots regularly, and in the autumn cut in every one of those shoots to three-fourths of their original length, as, for instance, a shoot of four feet length must be reduced to three feet, and other lengths in proportion. The shoots thus shortened will produce side-shoots during the summer, and in the month of March following the tree must be taken down from the wall or trellis, and every one of these side-shoots be cut back to two or three eyes, and the tree nailed up again. Some of the stronggrowing climbers, during the first few years after planting, may be advantageously cut down to within three or four feet of the ground, and they will start wonderfully, and make twenty or thirty feet of growth the next season, if the roots are well established in a congenial soil, and assisted during the summer with frequent waterings and liquid manure occasionally. After that, the only pruning that will be necessary will be to shorten in the longest shoots a couple of feet in April, and cut in the side branches from these to six or eight inches each twice a year, say in March and July. To keep the lower part furnished, which is an important matter as to the appearance of the wall or trellis, cut down one or two of the shortest shoots in April, and every year keep one of the lower rods on such a system, and the tree will be feathered to the ground. This is just the way to make a noble object of that fine variety Lamarque.



Weeping Rose.

Weeping Roses which are worked on tall standards require little pruning. The best varieties for Weeping Roses are the Ayrshires, Boursaults, and Sempervirens; when well done in the nursery, they fit their stocks well, and the latter increase with the progress of the head, and throw up very few suckers. For the first year or two these should be trained down to a small iron hoop, to give them a pendulous form, and the pruning will consist merely of shortening in any undue growths, and cutting out any unripe shoots, and leaving the vigorous growths at moderate and equal distances from each other.

Among particular Roses, *Macartney* needs but little pruning; *Marie Leonidas* must be shortened to from half-a-dozen to a dozen eyes, according to the strength of the shoots; the Hybrid China, *Brennas*, must be cut to eight or nine eyes; *Beauty of Billard* to two or three, and a third of the shoots cut clean

way; Madame Hardy (Damask) must have six or eight eyes and a thinning of unripe wood; Tea-scented, cut in very close, except those on walls, which may have half-a-dozen eyes; Persian Yellow, take off only the top of the shoots, as already remarked bout Austrian Briars. Hybrid Chinas, Hybrid Bourbons, and some of the strongest-growing Noisettes and Bourbons should be pruned in close every third year, to make them produce new wood, and to prevent the plants getting old.

So far much of the seasonal work is disposed of. Supposing them to start well after pruning, it will be necessary to keep a constant watch against insects, and to administer water plentifully during dry weather. As the "pests of the Rose" demand a chapter, that part of the summer work will be dealt with anon, but the matter of watering must be at once disposed of. Roses are very thirsty, and hence it is a folly to plant them on mounds or raised banks, where the water will run away from them, and leave but

little at the roots. Even on lawns where the carpeting of grass does much to preserve a moist bottom, it is frequently necessary to plant Roses in sunk circular beds, to facilitate the conveyance of water to their roots, for without plenty of moisture they are but sorry things. To obtain fine and abundant blooms their roots must never be dry all the summer long, and liquid manure, weak at first, and the strength gradually increased, should be given once a week at least, as long as they are in a growing state, but it should of course be discontinued in the autumn, to enable them to rest naturally. Soap-suds, house refuse well diluted, the drainage of cow-houses, stables, or piggeries, diluted with soft water, are admirable strengtheners; or if no such aids are attainable, throw two or three spadefuls of dung into a barrel of eighteen gallons capacity, fill up with water, and let it stand a day or two to settle, and use that and fill up again. After the second dose change the dung, and go on as before.

They like water overhead as much as they do at the root, and Read's engine is just the thing to refresh them with on summer evenings, when the operator will find as much delight in splashing the cool sparkling spray about, as the Roses will in accepting it. It is just the sort of "odd job" to enjoy a cigar over, and if frequently resorted to, there will be the less need to hunt for insects, for, one and all, they hate water, and the more vigorous the plants the less do they care to attack them. Lastly, do not forget when winter comes to mulch over the roots with well-rotted dung, and fork it in when the ground has its spring dressing. Give the hybrid Perpetuals a second manuring as soon as the first bloom is over, and you may expect to realize a "feast of roses" from them alone, if your selection be good, and your treatment such as I have described.

——"Never yet, by night or day,
In dew of spring or summer's ray,
Did the sweet valley shine so gay
As now it shines—all love and light,
Visions by day and feasts by night!
A happier smile illumes each brow,
With quicker spread each heart uncloses,
And all is ecstacy—for now
The valley holds its feast of Roses."

CHAPTER V.

"Exhaled asphodel
And Rose, with spicy fannings interbreathed,
Came swelling forth where little caves were wreathed
So thick with leaves and mosses, that they seem'd
Large honey-combs of green, and freshly teem'd
With airs delicious."

Krats.

PROPAGATION OF ROSES BY LAYERS, SUCKERS, CUTTINGS, AND SEEDS.

THERE is one striking peculiarity of the Rose that the cultivator must not forget; it roots shyly, and is slow in making a sufficiency of fibres to render its removal safe. If we could get Roses to make balls of fibres, as chrysanthemums do, we should get on wonderfully with them, and have thousands where we are now fain to be content with hundreds. But we must take them as we find them, and make the most of every chance they give us of increasing the charming family.

Propagation by layering is a safe but slow way, now getting somewhat out of fashion; perhaps the increasing practice of growing Roses in pots has much to do with its decline, for plants obtained from layers are generally very unfit for pot-culture. To obtain layers it is necessary to make special provision. The stock dwarfs must be selected, and planted out on rich soil, made a little sandy on the surface. Early in spring head down the plants, to cause them to throw out side-shoots, and during the next autumn and winter layer a number of the ripest of such shoots in the following manner:—Bend down the selected branch to the soil, and fix on a good joint as near the stool of the old plant as possible, and at that joint commence to make a slit with a clean sharp knife, horizontally in the direction of the branch, clean into the wood of the shoot, and through two or three eyes, so as to separate a portion of the wood to form what is called "the tongue," of three or four inches length; from this tongue you are to expect roots to be emitted, and with this view scoop away from beneath it a portion of the soil so as to form a hollow, into which press it firmly, sprinkle over it a little silver-sand, peg it down, and cover with the soil that was removed, and a little silver-sand over all. The process of rooting will be hastened if, before pegging down, you give the shoot a twist, so as to loosen the bark and



injure the wood vessels, to check the returning sap. A stone is frequently inserted under the tongue, but a fragment of broken flower-pot is better to keep it open, and hasten the formation of a callosity, which is the first step towards the protrusion of roots. All leaves that are in the way must be removed, a few only being left about the head of the layered shoot.



Most Cabbage and Provence Roses are very easily propagated in this way, indeed if strong shoots of Moss Roses are merely pegged down in October, without "tonguing" or trimming of any kind, they will generally root freely, and the next spring throw up flowering shoots from every joint. Pot Roses may be layered by lifting the earth to the shoot, as adopted by the Chinese. Draw the selected shoot through the hole in a flower-pot, suspend the pot in such a position that the joint which appears most likely to root well touches it inside, a little below the rim; then fill the pot with a

compost of loam, potsherds, and chopped moss, and put a little silver-sand next the joint. It will only be necessary to keep the soil in the pot moderately moist, and it will be rooted by the end of the season, when the branch must be gradually cut away below the pot, and, when quite severed from the parent, removed and treated as a young plant.

The next mode of increase is by suckers; these are taken off in October, November, or February. Dig down to the root carefully, so as not to cut a single fibre, and then separate the suckers by the hand, removing each by a clean cut from the parent plant, taking with it, of course, as many roots as can be got. If you see that no root-fibres will come away with it, cover it up again, unless you see that by a neat cut you can take a portion of the main root with it with fibres running outwards from the main plant. The strongest suckers may be planted at once where they are to bloom, but the weakest ones must be transplanted into nursery rows to strengthen for a season.

But the grand process is by cuttings; these, well managed, make the best plants, and to strike them is as easy as striking current trees. And first of cuttings in the open ground. If these are ken in summer, say from the end of June to the middle of August, which is the usual way, a shady border must be prepared for them, and the soil well broken up; and choose a time, if Possible, just after rain, or, if the weather is very dry, water the border well a few days before planting. The cuttings should be of young half-ripened wood, about four inches long, cut with a heel from the parent stem, and all the leaves trimmed off, except those that belong to the top buds. If the cuttings are taken off any length of time before planting, they should be covered with damp moss; but it is better not to take cuttings till all is ready for planting them, for exposure to the air does them much injury. Now open a shallow trench, and put down the line on one side of it, and chop the soil with the spade held upright, so as to form an upright bank of one side of the trench. Against this firm upright cut place the cuttings, the topmost bud and its leaves only out of the soil; keep them three inches apart, bring the soil to them from the other side of the trench, and tread it firmly against them. Proceed in this way with rows

146 THE ROSE.

six inches apart, placing each lot of cuttings against an upright bank, the object of this being that you may fix them firmly, for if loose in the soil they will be lost. If taken from plants in full vigour, they will be well rooted in eight weeks, and must then be carefully lifted and planted out in a more open situation to strengthen. By the end of the next season, they will be hearty enough to move to permanent quarters. At the first moving from the cutting-bed, any required for pots should be put into them at once, and go through the shifts necessary, as will be described in a chapter presently. Where there is a spent hot-bed available, Rose cuttings may be more quickly struck with gentle bottom-heat than in the open ground.

If you miss high summer, and wish to propagate by cuttings in autumn, take stubby side-shoots of three or four inches length. slip them off with a heel, because at the junction of the shoot with the parent stem there are always many concealed buds, which throw out roots more readily than from other parts. Smooth the cut part with a knife, trim off the lower leaves and shorten the upper ones, and plant them firmly in sandy soil under hand-lights. Perpetuals and Chinas do very well as late as October, but more delicate sorts do not take well late in the season. Mr. Beaton says, in reference to operations in the Experimental Garden at Surbiton, that "every day from the middle of June to the last of December is the best time to put in Rose cuttings in the open ground. Every one of the cuttings was made and put in during the week between Christmas and the new year; and I think the last few rows were put in the first days of the new year. a rough guess, there are from twelve hundred to a thousand and a half, and not more than a score have failed to root out of the whole; and just now the cutting-bed is as full of Roses as a patch of them in a nursery garden. I never saw a better hit with so many kinds; but there they are...... I believe our success depended in a great degree on a new kind of mulching material, on which we have been experimenting since last October. This material is the refuse of the cocoa-nut, after the fibre is extracted. We get a one-horse cart-load of it for one shilling; and it is the very best material for mulching all sorts of plants, from newlyplanted hedges to that of Rose cuttings, that I ever heard of."

(Cottage Gardener, July 22, 1856.) Not having tried Rose cuttings on an extensive scale during winter, and being quite unacquainted, except through Mr. Beaton's account, with the fibre, I must leave it to the reader to turn the above note to account as he pleases, but with the additional hint that the fibre is obtainable at the factories at Kingston.

To strike Roses in pots requires but a slight modification of the foregoing particulars. Prepare the cuttings in the same way, each with a clean heel from the socket of the old wood. Use five-inch pots, filled with light rich earth, pressed firm, and then covered to the rim with silver-sand. Water moderately, and then with a small stick make holes just deep enough, and no more. all round next the inside of the pot. Place the cuttings in the holes with the few top leaves of each pointing inwards, close up the holes with silver-sand, and water gently, and put into a cold pit with the lights over, or on coal-ashes on a shady border, and cover with hand-glasses. Tea and other delicate Roses are struck in the same way in spring, with a gentle bottom-heat, averaging 65° or 70°. The Waltonian case does well for such cuttings, if only a moderate stock is desired. As the cuttings make root. shift them to small pots, and then proceed as described in the chapter on pot-culture. April is a good time for striking Roses in pots with bottom-heat.

Propagation by seed is adopted for raising new varieties, and is, of course, a portion of the work of hybridizing; it is also employed for raising Sweet Briars and stocks for budding, as well as for the ordinary propagation of sorts that produce fertile hips. The proceeding is simple enough, but needs patience. As soon as the hips are so over-ripe as to begin to decay, gather them, and put each kind, with a tally to mark them, separately into shallow pots, and mix with them as much earth as will prevent any two of the hips touching, and then plunge the pots in the open ground, and leave them undisturbed till April. Then make a bed for them of light rich mould, but there is no need to take special pains with it as you would for plants. Take the seeds out as they are, and rub mould and seeds together between the palms of the hands, and sow on the surface not the hips only, but the mould in which they were preserved. Cover with half-

an-inch of fine mould, and, if hot weather succeeds, shade the bed with green boughs. Abundance will come up, and at the end of the season these should be transplanted to nursery rows, but without disturbing the soil of the seed-bed more than can be helped, for in the following year those seeds will come up which made no move the first. If you gather the hips before they are half-rotten, the most canny gardener that ever lived will not be able to get a plant out of them. Rose seeds may be raised in a moderate hot-bed if sown in pots and plunged. They should be transferred to a greenhouse as soon as they are an inch high, and in May the ball must be turned out of the pot without breaking it to a warm sheltered spot in good garden mould. There leave them, no matter if crowded, till the following March, when they may be pricked off into nursery-beds, and the next autumn put to blooming quarters.

CHAPTER VI.

I will not have the mad clytie, Whose head is turned by the sun; The tulip is a courtly queen, Whom therefore I will shun; The cowslip is a country wench, The violet is a nun; But I will woo the dainty Rose, The queen of every one.

THOMAS HOOD.

THE CULTURE OF STANDARD ROSES. CHOICE OF STOCK. PLANTING AND GENERAL PREPARATIONS.

If the Rose is the Queen of flowers she must of course be enthroned, elevated, and honoured, in a manner befitting her dignity. Why should she dwell low on the earth in a natural way, like the meanest of her subjects? No, the more exalted her rank, the more should she lead an artificial life, like the great ones of the human family, who, to stifle natural impulses, go so far in their high civilization (?) as to refuse the maternal

breast to the pledges of their royal love, ignoring thereby the tenderest manifestation of its beauty, of which human affection is capable.

If you want noble Roses to adorn your lawn-to lift their heads high in lusty pride above your borders-to shake their blushing clusters in the sun from the midst of shrubberies. or to range tier above tier, like terraces of colour in the rosaryyou must have standards, and to complete the pleasure of possession, produce them yourself. It is really quite a simple affair: the only difficulty—that of budding—is easily got over with patience, for it is really a pretty manipulation, and may be regarded as a part of the fancy work in gardening. Besides this, there are many kinds of Roses, and those, too, the best of all, that can be well produced only with the help of foster roots: they bloom more freely, preserve their shape, colour, and general character better, are lifted up and converted into trees on a level with the eye, or borne aloft like cressets, to give light to the scene that surrounds them, dowering the atmosphere with a Wealth of perfume, and making high poetry of the common sunshine, that alike blesses the Rose and its possessor.

There are many tender kinds, too, that languish on their own roots; there are many of the strong-growing sorts that run rampant with suckers, unless compelled to take board and lodging on the summit of a briar, and for many other reasons toorked Roses have a very special and particular value.

The standards are to be produced then, and November is the time to make the first step. Prepare good Rose-soil as already directed for their general culture, and order of a nurseryman or forester as many briars as you want. Get them early, and plant them the moment they arrive to hand, It is the early bird that gets the worm, if the worm is fool enough to be up in the "cool, the fragrant, and the silent hour;" and no prudent Rose-grower will forget the bird's example, for in this matter "delay is dangerous" in a hundred ways. By securing the supply early you get the pick of the season, and can have the best. You get them in the ground betimes, and they break regularly in spring, and are really fit for working when July comes; and besides these advantages, you have them fresh from the hedges

150 THE ROSE.

or woodside, and they lose none of their vitality through lying exposed to the air, kicked about and bundled over for weeks together, like so many hazel rods. Get them late and have the refuse of the season, after keen eyes have looked them over and quick hands have picked out every one worth having; them plant them late, with their constitution ruined for one season at







The same trimmed for planting.

least, perhaps for ever, and they have no time to repair the damage before the sunny days of spring come to still further exhaust them, so that the best cannot be budded till the end of August, when failures are more likely to happen from the lateness of the season, and the worst want another season to be fit to

take a bud, while, perhaps, the larger portion perish utterly, and reproach you with Young's motto, "Procrastination," etc.; you yourself having to lament labour wasted, and horrid gaps visible to every eye, to proclaim you "a muff," a lay-a-bed, a daudler; anything in fact but a vigilant Rose-grower, awake to every move of the honourable craft of jolly gardeners.

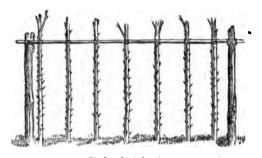
November, then, is the time to procure stocks, and they should be got into the ground with as little delay as possible. must have them of different sizes and qualities, unless you pick from a large number just those that suit you, and pay a higher price. In sorting them over give a preference to the straightest green and brown varieties; the lanky dry-looking dark grey sorts are not near so good as those that have a hearty-looking bark with a stem clean and straight to the head, the colour being of less importance than the shape and size, and the more fibry roots they have the better. Briars are grubbed up so roughly, that you will probably get few with desirable roots; indeed they cannot as a rule be had with such roots as gardeners delight in, but with huge fleshy underground stems, frequently of enormous size, and the older the stocks, the larger the tap roots, and the fewer the fibres. The first thing to be done is to sort them as to sizes; the most desirable are those that measure from two to four feet clear in the stem, though stocks of six or seven feet are necessary for forming weeping and climbing standards for special purposes on lawns and walls. Well-ripened suckers of the second year are generally the best and most easily managed. Having laid them out in separate parcels, take a sharp saw and trim up the roots. In this operation a large portion of the tap root will have to be cut away, and in so doing, cut so as to reduce it as much as possible without loss of fibres, for, though the absence of fibres is not a very serious objection, the more you have the better, because in the quick root action which most deciduous shrubs make after being moved in winter, the earliest and best roots will spring from those portions which are already furnished with fibres. Wherever a bud may be visible, and likely to produce a sucker in the following year, rub it off, and when the roots are brought to neat shape and compass, smooth over every portion that the saw has cut, with a sharp knife. The heads will be trimmed off

before you get them, but a little more trimming will be necessary. Cut every one back so that it will make a start from a good joint, and reduce the stems to such a size as may be desirable, cutting each to a good bud or ring, if the bud is plainly marked out close to it, that the bark may close over the cut part in the next summer's growth; but if you are in doubt, cut a few inches above where you expect the head to break, and the portion left will be useful to tie the tender shoots to, delaying the final removal of that portion till the graft has taken, and is able to heal the wound over.

The next job is to remove every prickle, and trim off the base of any shoots which have been roughly cut off by the woodmen in grubbing up the stocks. Cut them close in, as nearly even with the bark of the stock as possible, and with the thumb break off every prickle, taking care not to bruise or wound the bark in any of your operations. Whatever wounds may occur, and every part fairly cut in the trimming up, should be at once smeared over with a preparation of half bees'-wax and half pitch, melted in a pipkin, and well mixed and melted together. The tops of the stocks may be dipped into the mixture while it is warm. and any wounds on the stem may be smeared over with a brush. This operation is useful, as excluding the air from the injured portions, thereby aiding the formation of new bark to cover the abrasions. It is, however, very much neglected, as troublesome, and in most cases the wounds heal over by the natural tendency of the plants to establish themselves in a healthy manner; but the amateur grower should not neglect a single precaution necessary to insure success, for he grows Roses to keep, not to sell, and cannot afford, out of his limited number and choice variety, to lose a single one that a little trouble might have saved. operation of removing the prickles is usually deferred till the season of budding, but it is better done at once, for at budding-time the plants do not so well bear handling, and any wound causes an escape of sap, and the atmosphere is very destructive when acting on the exposed inner bark of the Rose.

In planting it is as well to economize space, for stocks need occupy but little room the first season. Take the sizes, and if possible, make a row of each, or make two rows of each size,

placing the rows in pairs, and leaving alleys between each pair only, so as to operate on each pair from the side next each alley. The best sizes for general stock are, for the first row, one foot, which make nice low border or pot plants; next eighteen inches, then two feet, two feet six inches, three feet, three feet six inches, and four feet for the last row. Any taller stocks planted for special purposes should be most carefully selected, unless very strong and quite ripe, they will not have sufficient vigour to take buds until perhaps the second season, or may in spite of you, break half way down the stem, and compel you at last to cut them over equal with some of the dwarfest. When planted in rows you need only leave space between for moderate freedom of action in superintending and managing; and in the rows they



Stocks planted out.

may be six or nine inches apart, the tallest not more than a foot at the most. Having planted them, drive a firm stake at the end of each row, and run a lath or hazel rod along, and to the rod attach the head of each by a safe fastening. They will then be secure against wind, and kept neatly together for economy of space and facility of cultural operations.

Supposing adverse influences to work against you, stocks may be planted as late as February or March, or even to the middle of April, but every day's delay after the first week in November is a day lost, not in time merely, but in the strength and life of the plants, and in the chances of ultimate success. The later they are planted the later they break, and the more gaps occur from

the presence of dead sticks in the rows. He who delays till spring will never be a master of the noble art of Rose-growing. Roses of all kinds, whether stocks or rooted plants, should be kept out of the ground as little as possible. If they cannot be planted immediately after removal, let them be "laid in by the heels," that is, lay them with their heads one way, and cover their roots with earth; but the less they lay in this way the better; indeed "laying in by the heels," which is too generally supposed to be a most preservative process, begets many dangerous delays, and is the ruin of a third of the stock of Roses, fruits, shrubs, and all sorts of things that are so treated, every season.

CHAPTER VII.

"We marry
A gentle scion to the wildest stock,
And make conceive a bark of baser kind
By bud of nobler race: this is art
Which does mend nature;—change it rather; but
The art itself is nature."
SHARSPERE.

BUDDING ON THE WILD STOCK.

From the day of planting to the time of budding, the stocks will give very little trouble, but must not be wholly neglected. If entered in November, they will break in March following, but, if planted late in the season, may not break till May, and will have very insufficient time to make way before the season will be gone utterly. This present June we have some, planted in March, which have only just begun to push, while others planted at the same time have good heads and look well, but the cripples are in the majority, and, of course, are barely worth a rush for at least this season, while those entered in November have fine heads, and promise well. As soon as they begin to break, look over them occasionally, and rub off every bud that shows below the head, unless the top of the stock produces no shoots, in which case wait a little, and if the head is evidently

weak, but a strong bud appears on the stem, cut the stock down to that bud, and let it push with all its might; one or two others will be pretty sure to appear in the vicinity, and you will probably get shoots for working, though at a lower height than the row to which the stock belongs. If a stock appears weakly, and has been already shortened sufficiently, it is sometimes advisable to let a few superfluous shoots remain, for though they use sap, they nevertheless help to increase the size and strength of the stock, for it is by the elaborating power of the foliage that wood is formed; at the same time, the best general rule is to allow only such shoots to remain as are really wanted. Three good shoots, well placed, so as to form a triangle, is a very desirable head for budding on; to large stocks five are acceptable, but one or two are sufficient for those that are really weak. The more equidistant and regularly placed they are the better, and this should be thought of in determining which are to remain for future use.

The best time to bud Roses is from the middle of July to the end of August; the sooner it can be accomplished safely the better, but it is quite useless to attempt it unless the stocks are in a vigorous state, and the sap rising freely, a condition indicated by the bark parting readily from the wood. After rain this happens with more certainty, and if the weather is cloudy there will be less evaporation, and hence fewer chances of failure. During heat and drought it would be madness to attempt the operation, and even if a heavy watering be given previously, the bark will not part so easily as after rain; and unless the bark of the bud and that of the stock be brought into conjunction quickly, and at a time when there is plenty of sap in the latter, and the atmospheric action somewhat reduced, there is the smallest possible chance of success. Choose cloudy weather, therefore; if immediately after a soaking rain all the better, and let the operation be performed either very early in the morning or in the evening. If the sun catches you meddling with his favourite flower he will surely spoil the work for you.

And now for the operation. First provide yourself with a good budding-knife with keen blade and ivory point; Saynor's are excellent, so are those made by Mr. Turner, of Neepsend, Sheffield,

and any nurseryman will supply them. Next have ready some good bass; new Cuba is the best, but any other kind will do if tough and fine. Cut the bass up into lengths, and have it close at hand and made moderately damp for use. Next get a can of water, and place it where the Roses grow from which the buds are to be taken, and then select the buds themselves, or rather the shoots containing them. To be sure, you may not have them on the spot, in which case you must secure a supply from a friend or nurseryman, and they will come packed in wet moss, and the moment you get them they ought to be thrown into water, and used directly, for the air soon spoils them. If you have the plants from which buds are to be taken, proceed to cut from them good shoots of the autumnal growth, that is, wood shoots as distinguished from flower shoots—shoots which are not going to flower, not shoots which have borne flowers at their extremities. If no wood shoots are to be obtained of any particular sort that



you are very anxious to bud from, you may try the buds of flower shoots; and in the case of Chinas and Hybrids they are more likely to succeed than other sorts. The wood buds are readily distinguishable from the flower buds; the flower buds are oval, the wood buds pyramidal. Having cut the shoots, and trimmed off all the leaves, but leaving a portion of each leaf-stalk, throw them into the water-can, and commence the manipulations. Be careful not to mix the sorts, or you will not be able to tally the standards correctly.

Having determined on the position where the first bud is to be inserted—and it must be placed close to the stock, on a shoot of this year—take out one of the shoots, and choose one of the plumpest buds from about the middle; the bud should be firm and quite closed. With the budding-knife cut out the bud with a portion of its own wood, in the form of a shield. The ordinary mode of performing this is to take the shoot in the left hand, and enter the knife an inch above the bud, and cut through

157

towards the centre of the shoot, and out again a little below the bud, so that you will have a crescent-shaped fragment, to which a portion of bark with the bud in the centre is attached. The job is now to wriggle the wood away from the shield of bark, yet without taking the bud away with it, and to do this neatly requires a little practice. Take the bud in the left hand, the







Bud just out.

Shield parting from wood.

Shield ready for use.

short fragment of leaf-stalk left will enable you the better to handle it, and hold the point of the bud downward, giving a gentle pressure to keep the bud in its place, yet not enough to injure or displace it; twist the upper end of the shield backwards and forwards, and you will see the bark separate from the wood, and the latter will come away clean, leaving the bud in the hollow



where the bark swells around it. If you bring the bud away with the wood, you must throw that shield away and try another; if the bud is there it is ready for use, and the most difficult part of the operation is over. There are, however, other modes of detaching the shield, the best of which for a beginner to adopt,

158 THE ROSE.

is that of marking out the bud with the point of the knife in the form of a shield, as just described, and then to pass a horsehair between the bark and the wood, letting the hair scrape the wood so as to bring off the shield clean, and the bud with it. But the neat twist with the fingers, with the help of the point of the knife, is the orthodox mode, and very little progress can be made by any make-shift method, so it is best to practise this at starting, and the "knack" will soon be acquired.

The insertion of the bud in the stock is a very easy matter; it only needs care to effect a good union, and the eye has as much to do with that as the fingers. Where the bud is to be placed, you must make what is called a T incision, that is, you must slit

> across the bark from left to right, and then from the centre of the first slit make a second perpendicularly, so as to cut the stock thus. In making the cut let the knife go clean to the wood and no more, and make the incisions just large enough to admit the shield freely, for it must fit close to the wood, and when completed be as firmly placed as if it had grown there. While you hold the shield

gently between your lips, insert the ivory end of the buddingknife into the Tincision, and gently loosen the bark from the wood

> of the stock, only as far as may be necessary for the reception of the shield. If the stock is in good condition the bark will rise easily, and the bud must be inserted without a moment's delay, for the atmosphere has a most baneful influence when acting on the exposed surface under the bark. When raised sufficiently the T incision will have the appearance here indicated.

Now slip in the shield from the top, push it down to the bottom of the incision, and then cut off the protruding segment

of the shield which stands above the upper part of the incision, as indicated in the cut; where A represents where the knife is to pass to remove the top of the shield, and make it fit exactly to the edge of the bark of the stock, at the transverse cut. The bark of the bud will now be underneath the bark of the stock, which will close over it and press it to the wood, and the top of the shield will exactly fit to the edge of the bark of the upper

incision, thus. This last direction must be strictly attended to, for it is on the line which forms the top of the incision, that

it is on the line which forms the top of the incision, that the junction first takes place, by means of the descending sap. If the two edges do not meet well there, the bud will be likely to fail. The proceeding may be varied by adopting Mr. Rivers's plan; namely, to make the incision in the stock obliquely, as in this way the shoot from the bud is less likely to be injured by the wind, which sometimes tears away shoot and bud together.

The bud inserted must be quickly tied up; it must be bound moderately tight, but with great care. Begin by placing the middle of the bass behind the bud, and then bind by crossing it regularly and neatly, so as to enclose rather more than the length of the shield each way, leaving the bud free, and peeping out from the ligature; making the knot behind the bud; if in front the knot holds the rain and does mischief. Some persons use grafting-wax to exclude the air from the portions of the bark which have been operated on; but there is really no need for it if the operator performs his task neatly, and without neatness the best bud ever entered will be pretty sure to fail. Grafting-wax is made as follows:-Take sealing-wax, mutton fat, and white wax, one part of each; honey one-eighth part. Melt the white wax and fat first in a pipkin, then add the sealing-wax, gradually stirring the while; and when the ingredients are well blended add the honey. and after another minute or two take the mixture off the fire. Pour into a tin mould or dish, and stir it gently till it begins to congeal, when it may be left for use. As it is terribly inflammable, be on your guard while making it, for grafting-wax has burnt more than one gardener out of house and home.

A few maxims may here be added as addenda, to impress upon the beginner the chief features of this pretty operation.

Never bud unless the sap is rising in the stock freely, for inless the bark parts well, it is impossible for the bud to take well. On the other hand, when the bark parts freely from the vood of the stock a speedy union may be expected, if the bud s also in good condition and inserted neatly.

In removing the wood from the shield begin above the bud, and in completing the insertion be particular in making the edges

160 THE ROSE.

of the bark and the shield meet closely and neatly, for it is there that the first junction takes place.

Mr. Rivers, one of our highest authorities in such matters, recommends that the incision in the stock should be made obliquely; we have described it as usually performed—vertically. On Mr. Rivers's plan it would be made obliquely, as a provision against the tearing away of the bud by the wind, late in autumn or early in spring.

Mr. Rivers recommends cotton-twist instead of bass for tying up; it should be of the finest quality, and of the kind that tallow-chandlers use for "dips." We frequently use worsted in the loose hank, and find it answer well. A laurel leaf tied at each end, so as to arch vertically over the bud, is a good protection against the action of the sun and rain. A light stick attached to the upper end of the stock, will be found useful for tying the shoot from the bud to, as it makes progress, as a security against winter storms.

At the nurseries, Roses are twice budded to increase the chances of success, and each, if they take, is allowed to push; but if the amateur adopts the first plan, he must reject the second, by cutting away the weakest as soon as a "take" is certain. This is growing to keep versus growing to sell.

If the season is adverse, a free flow of the sap preparatory to budding may be promoted by liberal watering with liquid manure, at a temperature of 90°, on the afternoon preceding the operation. Another dose of clear rain-water the next morning at daybreak, will be further beneficial, and the buds should be inserted before the sun gets power to cause a prejudicial evaporation. The shady side of the stock is the best to work on, if the shape of the head admits of it, and the portion worked should be free from knots or latent buds. If it is inconvenient to bud Roses before seven in the morning, let it be done after three in the evening; cloudy dull weather is best, and especially just after rain.

Lastly, endeavour to see the operation of budding performed, once at least, before you make your first experiment, for it is one of the most difficult to describe. It depends upon "knack," and that is best acquired after "ocular demonstration." Having seen it, come back to these pages for general advice, and you

will soon become expert in the manipulations. It has been recommended for beginners to make their first essays on the branches of willows, so as to gain an idea of the relations of the bark and the shield, without fear of having to pay dearly for experience.

CHAPTER VIII.

——"STRENGTH may wield the ponderous spade, May turn the clod, and wheel the compost home; But elegance, chief grace the garden shows, And most attractive, is the fair result Of thought, the creature of a polished mind."

OTHER MODES OF BUDDING.

The preceding chapter treats only of the ordinary budding of standards. Though the operation is the same, or nearly so, in all cases, the mode of its application varies according to the kind of plants under culture, and the desired character of the future tree. These other modes we shall briefly touch upon here, with the view of showing the Rose-grower how he may vary his operations in the creation of stock, for the embellishment of the garden.

The nurserymen practice largely budding on the stem, instead of the head of the tree, and use for the purpose small green briars, which are planted close and left to make what head they will. Stocks that are not over strong too, or which have but one shoot, are sometimes budded in the same way; and buds inserted in the stem usually take well if the stocks are young, and have clean, green, and easily-parting bark. The mode of budding on the stem is precisely the same as already described, but the place chosen for the insertion of the bud is usually half way down the stock, below all the shoots. In March the stock is cut over an inch above the bud, and the latter usually pushes vigorously and makes a good head the first season. When only one shoot is fit for working on a stock, another may be entered on the stem, on the side opposite to the one placed on the shoot; and Roses of delicate habit which would not use the sap of free-

162 THE ROSE.

growing stocks, may be advantageously budded in a similar manner. Another variation is that by which *Dwarf* Roses are obtained by working them, instead of growing them on their own roots, either for borders or pot-culture. The *Manetti* stock is largely used for this purpose, Mr. Francis, of Hertford, having at the present time upwards of forty thousand in his nursery; and as an exhibitor he carries all before him in this particular department.

In working dwarfs cut off the head to within six inches of the ground; then with the knife make a T incision on the upper side of the young branches, as already described in detail, and enter the prepared buds.

Another mode of budding is to enter buds in the usual way all along the shoots, six inches apart from each other. This should be done in June and July, or early in August. At the beginning of October cut them off, and treat them as cuttings, (see chapter five.) Take out all the eyes of the stock, except the one above the inserted bud, plant them in rows, and when they have grown six or eight inches, mould them up so that the inserted bud will be three inches under the soil. The inserted bud will now put out roots, and stock and bud will both flourish together in matrimonial amity. Ramblers, Boursaults, Manettis, and Adelaide d'Orleans, are the best of stocks for this kind of work.

The French bud briars as they stand in the hedges, and then treat them as cuttings. The same plan has been practised in this country, but does not succeed so well, the climate not being so favourable for the operation.

CHAPTER IX.

"Rose of the garden, how unlike thy doom!

Destined for others, not thyself, to bloom.

Cull'd ere thy beauty lives through half its day;

A moment cherish'd, and then cast away;

Rose of the garden! such is woman's lot,—

Worshipp'd while blooming,—when she fades forgot.

MOORE.

TREATMENT AFTER BUDDING.

THERE is work yet before you, for the placing of buds is not all that is requisite to secure Roses. You will soon find that, having meddled with nature, the old dame will concoct a conspiracy against you, the sun, the rain, the wind—the very sources of life to every green thing—will become your enemies; and what mischief they fail to effect, slugs and snails will do their utmost to accomplish. But having commenced you must go on, determined not to be beaten. Nil desperandum ought to be chalked up in the tool-shed and above the garden door, or even spelt out in a chain-pattern of flowers on the turf, to keep vigilance alive, and preserve the heart from despondency amidst multiplying difficulties. Most of the after work, however, is of a watchful or precautionary nature; there are few quaint "knacks" to study, for if you once get your buds well placed, you only need "watch and ward" to bring them safe through every trial, though pitilessly pelted by legions of foes.

It must be obvious that an inserted bud is in a very artificial condition, at least for a considerable length of time. It is long before the yeoman stock can fairly agree with his delicate courtly spouse, and unless they both have a little coaxing they may separate for ever, without the aid of a new divorce bill. The first step to prevent this is to make provision for supporting the shoot from the bud, the moment it is of sufficient length for a strip of bass to be passed round it. To the head of the stock tie a stiff short stick, of about the thickness of the finger, or less; it must be

stiff so as not to budge a hair's-breadth in the most threatening gale. To this stick tie the new shoot as it rises, and see at all times that your yet but partially united bud is safe against wind-

In very favourable circumstances the bud gets pretty well united in the course of about five weeks, sometimes eight, ten, or more weeks may elapse before the union may be considered good. At all events six weeks after budding the heads should be looked over, and the ligatures loosened a little, or unbound and tied use again with broader strips of bass, and made a little looser that before; but this must be very tenderly accomplished. The best way is to cut with the point of the knife that part of the binding which is just behind the bud, taking care of course not to get through to the bark. If the bud is swelling, and the binding appear very tight, this loosening must be done; if the bud seems dormant, yet healthy, and the bass only moderately tight, the binding may be left untouched till spring.

Now supposing the bud to have taken, the character of the future head is to be determined by judicious pruning and stopping. There must be no undue haste to cut in the wild branches, because any sudden check to the flow of sap will disorganize the tree: but as soon as the sap is down, which happens at the end of October or the first week in November, you must slightly prune in the wild branches, some growers cut them close down soon after budding, owing to a participation in the common error that the more closely you prune the stronger the tree becomes. True, after pruning there is always a tendency to make a good deal of new and small wood, but that arises from the sap having no natural escape, and it breaks out in shoots here, there, and everywhere; whereas in a healthy tree the most vigorous leaf action is at its upper extremities, in fact it is by means of the foliage that the sap from the root is converted into wood, and in the culture of the Rose hasty and over severe pruning is for that and other reasons very prejudicial.

When the tree has begun its seasonal rest, trim up and shorten in the head, but use the knife moderately, and leave the tree neatly shaped, with a head somewhat proportioned to the root. The pruning must be tenderly accomplished, or the bud may be shaken to its injury.

If the bud pushes well in the autumn, it must be stopped by nipping off the top bud as soon as it is six inches long. This will cause its sap to concentrate about the rings of the bark, and in the ensuing spring it will be prepared to throw out side-shoots for the formation of a head. If, however, the head is small, or the position exposed to the north or east, it will be better to let the wild head remain untouched till March, or even so late as the first week in April, for the earlier you prune the earlier will new shoots push, and it is not desirable to force a tree into growth too early for it to make real and beneficial progress.

In March the most important of all the pruning operations takes place. The wild branches are all cut away, except one bud above the inserted bud; that is, one wild bud is left on the shoot which was worked, and this is called the sap bud, its office being to draw the sap upward, and help the pushing of the inserted The sap flowing freely in that direction to the one wild bud. hastens the completion of the union where the incision was made. and the entered bud is likely to make good progress. If no bud but that entered was left, the sap might not readily flow to it. and to get rid of its sap, the plant would throw out side-shoots all the way up the stem, and perhaps suckers from the root: whereas the sap bud draws it upward, and encourages the kind of growth you want. If a knot forms below the inserted bud. and begins to push with it, it is well to allow it to remain for a time, for its presence will frequently assist the inserted bud, by promoting a free flow of the abundant sap; but when the inserted bud seems strong enough to use the sap, the wild branch may be removed by a clean cut to its base.

When the March pruning takes place, the last job is to cut the top of the stock close over to the inserted bud, so that no more wild growth can take place above the bud, to interfere with the formation of the head. It must be cut at an angle of 45° or 50°, so close to the base of the shoot from the bud, that there shall be scarcely the thickness of cardboard above it, for the bud will have to help in barking it over; and if any length of wood is left above the bud, it will either produce shoots of wild growth, or die and eat into the stock, to the ruin of the tree. When cut over, the wound should be covered with clay paint,

(see page 113,) or with the mixture described at page 159.

The sap-bud may now be expected to grow vigorously; it is better if it does so. When it has got two or three pairs of leaves stop it by nipping off the top with the finger and thumb; then as the placed bud prepares to take the lead, cut in the sap-bud a little closer, but do not remove it utterly till about midsummer of the year following, when it may be cut off close to the inserted bud, and that should be the end of all wild growth. Now you have made your Roses, and may transplant them to their blooming quarters in the garden or rosary.

Your city life of care and strife, Leads sooner to the close, Than scenes like these, to hearts at ease Beneath the flowering Rose.

CHAPTER X.

"Go, lovely Rose; Tell her that wastes her time and me That now she knows. When I resemble her to thee, How sweet and fair she seems to be; Tell her that's young, And shuns to have her graces spied, That hadst thou sprung In deserts where no men abide, Thou must have uncondemned died. Then die, that she The common fate of all things rare May read in thee: How small a part of time they share That are so wondrous sweet and fair." WALLER.

GRAFTING THE ROSE.

GRAFTING is a neater and more certain method than budding; it is quicker, too, in producing a result; a tree is sooner formed, and sometimes grafts flower the same season. It is an economical practice, too, for in the spring pruning every good shoot cut off may be used as a scion, so that if the stocks are well rooted,

THE ROSE. 167

the propagation of the choicest sorts may be commenced at once, without waiting for the summer budding. It may also be adopted where buds of the preceding autumn have failed. To succeed, the sap must be rising freely in the stocks, as indicated by the swelling of the wood and buds, and the stock must be in advance of the scion, that is, in a condition of greater vigour, and to insure this condition the scions are cut some time before they are to be used, so as to reduce their strength, and fit them to take up ap from the stock.

In grafting Roses, the wedge graft is the best mode, and it is, erhaps, the easiest of any. The stocks should be in good conlition, well rooted, and about to grow vigorously. In February, Procure the scions; nurserymen will supply them to name of all he choicest sorts; and if you have some sterling Roses from which ou can take scions, cut off with a sharp knife some strong shoots hat have not begun their spring growth, cutting them their full ength; tally each lot of shoots as soon as taken, and tie in separate oundles those of different kinds. These must be kept alive for ome weeks with great care, and the best way is first to cut off iny of the top buds that are open, and then to stick the thickest ends of the shoots into moist clay, pressed tightly to them, and place the whole in pots of moist mould, and stow them away in some dry shed or spare room where they will not be subject to the action of sun, rain, or wind; they must be kept just moist for three weeks, and if they are in a very dry place it will be as well to strew a little damp moss amongst them.

At the expiration of three weeks, those least fit for grafting will be shrunk, and must be picked out and thrown away, but the best will be still plump, and in a desirable condition for use. The first week in March is the best time in most seasons for Rose grafting. The stock is cut over horizontally, and a slit or wedge made in it vertically, one and a half or two inches long, a strong sharp knife being better than a chisel for the purpose. It must be a clean cut down the centre of the wood, without any jagging or tearing of the bark. As soon as the slit is made, take the scion in the left hand, cut away the portion that was buried in the clay, and cut away from the head of the scion as much as may be necessary to reduce it to two or three good buds in the middle of the shoot; then cut the lower end to a long

wedge, proportionate to the length of the slit in the stock, and with the lowest bud only just above the top or thickest part of the wedge. No dirt or chips must be about either of the cut parts, and the bark must be as whole and untorn as possible, not a scrap removed beyond what comes away in cutting a clean wedge. Now open the slit in the stock by means of a hard wooden tally or ivory wedge, and holding the thickest part or front of the scion outwards, insert it in the slit, and allow the stock to close and pinch it; they ought to fit very neatly, and the inner bark of the scion ought to touch the inner bark of the stock all the way down, and the outer bark of each should meet neatly down the outside of the cleft. Now prepare another scion in the same way, withdraw the ivory wedge, and inserts







that on the opposite side of the stock, and in the same way proceed till you have three or four scions inserted, though a couple will be enough for middling-sized stocks, and in the first attempts no more should be tried.

In binding up, it will be best to use broad strips of good bass, and to pass it round so that it shall be impossible for the scions to shift, either owing to the weather, or the swelling of the stock, or the accession of a flow of sap. When neatly, but not too tightly, bound up, cover the whole over with grafting clay or the mixture described in the chapter on budding, to exclude the atmosphere entirely from every portion that has been cut. Of course the cleft in the centre of the stock between the scions

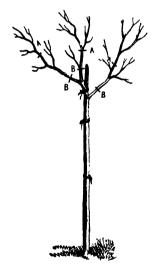
must be bound over with bass to prevent the clay from touching the split wood, which will unite in time by the flow of the sap. A bundle of soft moss should then be tied round the head of took and the scion, still further to defend both from the atmosphere, and preserve moisture to the bark. In dry weather he moss must be occasionally wetted, but if the water trickles hrough any crevice in the clay or bandages, and gains access the head of the stock, it will do much mischief, and may cause he loss of the scions. Grafts inserted near the ground may be covered with mould after the clay is put on.

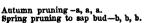
The same process may be adopted for grafting choice sorts on any well-rooted stools of Roses that are in a proper condition. Suppose you have some dwarfs that you eare little about; they are well rooted, and ready for their spring growth. Cut them over, and cleft-graft them with first-rate varieties, entering only one scion in each shoot, and leaving but one bud of the graft to break. As soon as the graft has taken, layer the shoot under a hand-glass, and it will root and make a good plant for removal the same autumn.

Grafting completed, you have now to hope for a speedy union and the perfect healing of the wounds that have been made. About midsummer, remove the clay and loosen the ligature, and apply a coat of mixture, leaving the point of the pushing bud free. This must be done just after rain, when the clay will be soft, and easily removed, and the scion in a condition not to feel a shock from exposure to the air. Any grafts that have not taken should then be cut away, and every portion of dead wood on the stock where it has been worked cut clean away to the scions that have taken. and the wounds covered with mixture. But if all fail, knock off the clay and cut the stock down to the first wild branch that has broken out below the graft, and thus get a new head to bud upon in the autumn. But there must be no haste in inferring that the graft has failed; they sometimes lie dormant a long while, and then push vigorously; at all events, as long as the bark and buds of the scion remain plump there is nothing to fear, and when once a good leaf opens on the scion the union hastens, and ultimate success is certain.

Grafting clay is made as follows:—Take strong adhesive loam, and beat and knead it till it is of the consistence of soft soap.

Take also some horse-droppings, and rub them through a riddle, of half-inch mesh, until thoroughly divided. Get some commanure, (the fresher the better,) and mix about equal parts of the three, kneading and mixing them until perfectly and uniformly mixed; some persons add a little road-scrapings to the mass. A vessel with very finely-riddled ashes must be kept by the side of the grafter, and after the clay is closed round the scion the hands should be dipped in the ashes; this enables the person who applies the clay to close the whole with a perfect finish. It must be so closed that no air can possibly enter, and it is well to go over the whole in three or four days afterwards, when, if any have rifted or cracked, they may be closed. (Cottage Gardeners' Dictionary.)







Second Year - one bud failed.

CHAPTER XI.

"Let us fill ourselves with coetly wines, and olutments, and let no flower of the spring pass by us.

Let us crown ourselves with Rose-buds, before they be withered."--THE WISDOM Dr SOLOMON.

CULTURE OF ROSES IN POTS.

Por Roses are beautiful objects, and take the highest rank as greenhouse, conservatory, and window ornaments. It is by pot-culture that the most symmetrical and perfect specimens are obtained of the more delicate and costly kinds of Roses, the lovely Teas, Chinas, and Bourbons, or Hybrid Perpetuals worked six inches high or close to the collar, so that when potted the stem is scarcely visible. For pot-culture, Moss, Provence, and Austrian Persian Yellow are good subjects on their own roots; but Hybrids, Bourbons, Chinas, and Teas do best when worked.

Pot Roses require some special pains to be well bloomed; and it is of the first consequence that a Pot Rose should be understood to be a thing quite distinct from a Rose potted. The plant ought to be grown from infancy in a pot, and brought by a regular course into a condition of strength commensurate with its confined space, and the work required of it. In forming a stock of Pot Roses, commence in the autumn with such plants as you purpose cultivating. If worked, take well-rooted layers, and pot them off in small pots in a compost of two parts sandy loam and one of leaf-mould, but with no manure. The pots should be as small as their roots can be got into, for the purpose of giving as much increase as possible afterwards. Prune each to about three good eyes, and plunge in ashes in a dry cold frame, and there winter them. Keep them as dry as possible, so that they do not flag, so as to prevent them breaking prematurely.

In March, re-pot them into pots two sizes larger, using a similar compost, and give them a cold frame again, with plenty of light, and encourage their growth, so as to have them well matured

before the next winter; and all through the summer they must have such attention as to watering, destroying insects, etc., as you would give to any other choice stock. Just before they cease growing, partially cut through all the shoots at a length sufficient to leave three good buds on each, and as soon as they are quite at rest, complete the removal of the portions partially cut, and again winter them in frames, and keep as dry as possible, to secure perfect rest.

Next spring, turn them out of their pots, slightly reduce the ball of each, and re-pot into pots one size larger, in a compost of two parts sandy loam, one of leaf-mould, and one of very old and sweet dung. Give them a start in a close frame, with a temperature of from 40° to 50° or 55° by day, with a fall of at least 5° at night, and supply them constantly with water, with occasional syringing. When they have fairly started, stimulate them for blooming with weak manure water; keep them always clean and tidy, and, as usual, keep your eyes open for insect enemies. Artificial supports may now be wanted, and stakes must be used to train them to, or their branches may be brought down to the sides of the pot, so as to spread them out well as for exhibition. Air must be given as freely as possible, except during cold drying winds, when it is advisable to keep them close from its wasting influence; they will now bloom profusely.

If on their own roots, cuttings make much the best plants for pot-culture, but unless great care is taken in potting them off from the cutting-pots many may be lost; hence a little bottom heat is good at the first shift, especially for Teas and Chinas. loam and peat is a capital soil for Pot Roses not worked, there should be a little sand, and but a little, but very efficient drainage. Chinas so grown must be repeatedly stopped to induce a bushy habit; at the end of the growing-season a few of the principal branches may be quite cut in, and the remainder need have no pruning at all. The easy manner in which Chinas may be brought into compact specimens, and the profusion of their bloom renders them particularly suited for pot-culture. who are disposed to give the one-shift system a trial, may do so with China Roses from cuttings with great hope of success, but the after-treatment must be adapted to their condition; occasional refreshing of the surface with top-dressings, the use of Jiquid manure, and at starting, a sound loam and very fibry peat must be used, and plenty of drainage.

A Banksian Rose trained to a pillar trellis is a fine ornament to a conservatory, and if grown vigorously in the early part of summer, Banksian Roses are amongst the best to make fine specimen plants in pots. Noisettes and Hybrid Perpetuals are perhaps the least suited of any for pot-culture, they seem to reed root-room and the open air; but the Scotch Rose, though ts blossoms are of short duration, is nevertheless very eligible on succount of its profuse blooming and neat habit. Among the Teas, worked plants of Adam, Comte de Paris, Devoniensis, - figured,) Niphetos, Saffrano, Gloire de Dijon, Madame Villermoz, and Duchess of Kent, are perhaps the best eight that can be chosen. Mrs. Bosanquet is a lovely China, very much used for pot-culture on very short stocks. Among Bourbons take Du Petit Thouars, Louise Odier, Sir J. Paxton, and Souvenir de Malmaison: the last is the finest Rose for pot-culture that we have. Among Hybrid Perpetuals the most suitable are Baronne Larray, Baronne Prevost, Duchess of Sutherland, (figured,) Geant des Batailles, Leon des Combats, Madame Laffay, Mrs. Rivers, Mrs. Elliott, (rather shy,) and William Jesse.

CHAPTER XII.

FORCING ROSES, AND GREENHOUSE CULTURE.

The stock for forcing should be potted early in autumn, in largish sized pots, in a compost of equal quantities of loam, leaf-mould, old hot-bed dung, and sand. Room should be left for a layer of rotten dung at the top, or better still some deer, sheep, or goat droppings, gathered a few months previously and kept dry. Cut the plants back to three good eyes, and plunge the pots in sawdust, and encourage them to push. About November begin to force those chosen for the first lot. Begin with a temperature of 50° and gradually increase it to 65°, with a fall of 5° at night. They should be plunged, and the pots as well as the plants kept moist; the syringe should be

used freely, and they should be watered with liquid manure, at a temperature of 70°. If they push very vigorously they must be disbudded, only one bud being left to each flower-stalk, and that the strongest. With good management the first lot will come into bloom in January, and may be succeeded by other batches treated in a similar manner.

In greenhouse culture, where forcing is not resorted to, the winter pruning should take place in December, for those that are to bloom in May and June. Place them in the house in the early part of January. Keep the temperature as near to an average of 45° as possible, with a rise to 50° or 55° for sunshine. Water liberally, and use liquid manure occasionally, keep down insects, and train as required, and in other respects treat as recommended for general pot-culture.

CHAPTER XIII.

DISEASES AND ENEMIES OF THE ROSE.

THE Rose has a host of enemies, and is subject to disease occasionally, and were it not for its immense vital energy, it could scarcely continue its existence, seeing how the green fly sucks its juices, how the beetle eats into its buds, how snails, caterpillars, and a hundred other enemies continually war against it. As a matter of course, good culture is the best preventive; but good culture includes more than preparing a good soil, and performing the planting properly. Frequent inspection of the stock is a very essential duty: such inspections will bring to light many adverse influences which, if not discovered and checked at once, may not only ruin the plant attacked, but possibly spread over the whole collection, and do immense injury. Among the diseases of the Rose, blotched leaves, mildew, and extravasated sap are those most common. Worked Roses, being in an artificial state, one sap circulation having to serve for two kinds of plants, are for the first year or two frequently very irregular in their growth. If the head is a very free grower, and the stock too poor to supply sap, the leaves will shrivel and fall, and the same

nay happen after transplanting, if the roots have been injured, r the tree removed from a rich soil to a poor one. Transplanting ery late, especially if warm rains occur early in spring, immediately fter the trees have been moved, so as to give them a start above refore they have made fresh root, generally causes a shedding of oliage as soon as summer droughts occur. In each of these cases t is evident that the stock is not equal to the demands of the nead, and the best course is to prune in the head moderately. and to dig a trench down to the roots in a circle two feet from he stem. Into this trench throw three or four inches of wellotted stable-manure, cover it with the soil from the trench, and then bank up the trench so as to form a hollow with the tree n the centre. Three times a week pour into this hollow three or four gallons of water, and in the course of a few weeks an improvement will be visible, and the Rose may bloom as well as anv. though later in the season.

There is no doubt that mildew is often indicative of weakness in the tree, as much as it also certainly indicates that the spores of fungi abound in the soil and the air. It is in cold uncongenial seasons that mildew appears, and the weakest plants are those soonest affected by it. There are three kinds of fungi known to be parasitical on the Rose, Uredo rosæ, Puccinia rosæ, and Cladosporium herbarum; sometimes all three may be found at the same time infesting the leaves of the Rose, and causing a mouldy, unwholesome appearance, as unsightly as pernicious. best of all remedies is sulphur, either in fine powder dusted over the leaves, or in the form of sulphur paint, made of clay, sulphur, and water, beat together till they form a liquid paint, which must be applied with a brush. Where any portions appear more particularly affected, carefully cut away the leaves with a pair of scissors, letting the leaves fall into a basket, so as to avoid spreading the contagion: then paint the stems and stipules over, and burn the cuttings. Generally a careful dusting with flour of sulphur will The Boite à Houppe, sold for half-a-crown by be sufficient. Burgess and Key, of Newgate Street, London, is the best instrument ever devised for distributing lime or sulphur in impalpable powder among plants.

Extravasated sap is evidence of the very opposite condition which attends the shrivelling and falling of the foliage. Here there is

an excess of vigour, and the tree being unable to get rid of its sap sufficiently fast by means of the foliage, the sap vessels burst, and the plant gains relief. If the tree makes very long shoots, and grows with great luxuriance, you may conclude that plethora is the cause; and root-pruning, and the removal of a portion of the rich soil it is in, and the substitution of a poorer soil for it, is the obvious remedy. But it sometimes arises from the tree being hidebound, owing to hardening of the bark, in which case the branches should be shortened in a little, and the tree supplied with liquid manure, which for a time will appear to increase the evil, but by giving the sap a free flow will really cure it, by causing a loosening of the bark.

Green fly is but too well known as a parasite on the Rose, and if any one of God's creatures ever came in for a virulent hatred by men, the Aphis rosæ most certainly enjoys it, though seeming to thrive none the less. In small collections it is possible by an occasional hour's work to make great havoc among green fly by means of the fingers, drawing the tops of the shoots between the finger and thumb, and crushing them there and then. A woollen glove would make the touch more tender to the Roses, and obviate the unpleasantness to the fingers. A good shower from the garden engine would then cleanse the shoots, and destroy those that had fallen about the stems and the ground. In applying tobacco smoke, Brown's fumigator is the best instrument, and if used out of doors, the plant operated on must be covered with a sheet.

For the beetle, (Anisopia horticola,) and the maggot, (Tortrix bergmanniana,) which is the larva of a little moth with metallic black wings, not so large as a house fly, the only remedies are hand picking, which must be done with care, or many of the pests may escape. The vigilant eye is better than any nostrum for such very individual but destructive enemies. If the maggot gets the upper hand, and picking appears a hopeless and endless job, trim off the shoots and burn them at once, and let the trees make a fresh growth.

CPAPTER XIV.

SELECTION OF VARIETIES.

I HAVE endeavoured so far to reduce the rationale of Rose Culture to the fewest possible rules, and such exceptions as necessarily occur I have sought to simplify. But when we come to the selection of sorts, the matter really grows complicated; for, though an old hand at Roses can tell them off into classes and colours, and in a few moments decide as to the best kinds for this or that purpose, a beginner may very well be puzzled the immense variety of colours and habits into which the Rose has sported, and be lost in wonder as to where on earth to many Roses came from. Now classification, whether in chemistry, zoology, or any other science, has a very forbidding look to outsiders; but the moment you get the key, the whole matter arranges itself into order like the steps of a flight of stairs; and what before appeared bewildering, becomes as simple as a multiplication table.

First then, as to Roses of large growth. These comprise five families, all of them suited to grow as climbers or to weep on lawns; and when well cultivated they are the very noblest of floral ornaments that can be had for arbours, trellises, walls, or spacious lawns, where they may be allowed to droop over from their stems of six or seven feet high to the ground. They are all easily grown, require no pruning, or at least only such as may be sufficient to preserve uniformity of growth; they seldom throw up suckers, and the stock continually grows as the head increases. The seven families of climbing Roses are: -Ayrshires, which are the hardiest, and suitable for north-east aspects; these are mostly pale-coloured Roses, white, blush, and flesh-colour being the leading tints. The Banksias and Boursaults are less robust in growth, but they comprise some charming purple, crimson, and yellow flowers. The Multifloras are very magnificent and of most luxuriant growth; one of them, the Greville Rose, is perhaps the handsomest of all climbing Roses; it produces in the same clusters flowers of every shade of purple, from white to the darkest tint. A wonderful specimen of this Rose flourished some years since (and perhaps does still) at a nursery near Woking; it covered one hundred square feet on a north-east wall, and produced annually some three thousand five hundred blossoms, in various shades of white, blush, crimson, scarlet, and purple. This variety is readily distinguished from other *Multi-floras*, by the thick fringe of the leaf-stalk and the larger size of the leaves themselves.

The fifth important section is that known as the Sempervirens or Evergreen Roses, the three best of which for general purposes are Felicite Perpetuelle, Myrianthes, and Floribundus. The first of these is a creamy white, the next a delicate rose, and the third a rosy buff; but they are all good, and number at least sixteen very distinct sorts. The two other families of climber are, Rubifolia, containing half-a-dozen varieties of white, pink, and crimson, and the Hybrid Climbers, a very small section, delicate in habit, and bearing well-doubled flowers. These latter are worthy the attention of connoisseurs, who should possess themselves of Astrolabe, Queen, and Sir James Sebright.

We now come to Moss Roses, which form a large and highlyprized class, numbering many very distinct varieties. These may generally be grown either as standards or on their own roots. But the Moss Roses may be divided into two distinct classes, one the early flowering, and the other the Moss Perpetual. The first section comprises Roses that bloom from May to July, the second from May to November. They are all highly-scented, and of rather delicate constitution, so as to require careful treatment to bring them to perfection. The best early Moss Roses for a small collection are Alice Leroy, lilac, very large; Aristides, carmine; Common, rose-colour, and very large when well grown; White Bath; Princess Royal, salmon blush; and Latone, deep rose, with white margin and well mossed. Among the perpetual Moss Roses the most noted are Imperatrice Eugenie, which has somewhat disappointed the expectations of amateurs; Madame D'Ory, carmine and good; Pompone, a very free bloomer; and White, which has crimson stripes on a white ground, and is beautifully mossed.

Two other classes claim a passing note. The Provence or Cabbage Roses are everywhere known for their fragrance and hardiness. Light colours prevail in this section, Unique being the best white; A fouilles de Laitres, a splendid rosy tint with Curious foliage: Jacquimenot, pink and white; and Royal, which is a large globular blush flower, and generally comes very fine. The common Provence is by no means to be despised, and should have a place in the garden of every lover of the queen of flowers. The other section, to which I can only casually refer, is Rosa Gallica, of which we have some fifty good varities, all of them large, well-shaped, but in no case highly scented. The Provence, the Hybrid Provence, and the French Roses, are usually grown on their own roots; Rosa Alba the same: But a few of the French are suited for working as standards: and those are Boula de Nanteuil, Grandissima, Latitie, Ohl, Shakspeare, a superb crimson; Tricolor de Flandres, and Triomphe de Jaussens.

Another important division of the Rose tribe is the China Rose, of which there are three very distinct sections—the true China, the Hybrid China, and the highly-prized Tea-scented China. In each of these sections there are many choice varieties. all of them suited for walls, poles, or to grow as dwarfs on their own roots in beds and parterres. They are quite a grand class of Roses, their foliage and bloom are exquisitely beautiful; and the Hubrid China is so hardy as to do well in north-east or north-west aspects, either on walls or trellises, or trained in a pyramidal form. The Tea Roses are the most delicate of the China tribe, and hence are best suited for greenhouse culture, and are always best on their own roots. If grown in the open ground as standards, they must be taken up in November placed against a wall, their heads protected, and re-planted at the beginning of March. In Devonshire and the Isle of Wight they need no such protection. Dwarf China Roses are levely things for pot-culture, and in warm situations make beautiful beds or edgings for a rosary.

Austrian, Sweet Briar, and Scotch Roses are all early, and go out of bloom before autumn. The Austrian section contains the splendid Persian Yellow, which is a fine sort for a wall where autumn flowers are not required.

The last three sections that I shall name are the most important

180 THE ROSE.

of all; they are the Noisettes, the Bourbons, and the Hubrid Perpetuals. The Noisettes are of modern introduction, but already number more than thirty very fine varieties. They are adapted to grow either as standards, dwarfs, or on poles, or for walls in south and south-west aspects. La Biche and Triomphe de la Ducherie are strong-growing Noisettes that may be cultivated as tall weeping standards for lawns. Aimée Vibert is a pure white. suited for dwarf standards or on its own roots. Cerise. Jaune Desprez and Cloth of Gold are also choice kinds, very distinct in character. Jaune Desprez is a very sweet-scented Rose, of a very exceptional colour, neither to be described as fawn or vellow -quite a curious thing in its way, and very desirable as a climber. or to train over an umbrella, when it makes a beautiful object. Any of the Noisette Roses may be turned to good account for almost any purpose. The Noisettes are late bloomers, and hence tell well in the garden when the first blooms of the Hybrid Perpetuals have gone off.

Bourbon Roses are equally useful for every purpose for walls, lawns, and poles, when worked on standards from six to eight feet high, or for beds, borders, and pots, when grown on their own roots. The foliage and blooms are always fine, indeed magnificent, and they are, generally speaking, strong growers and easily cultivated. The Hybrid Bourbons are the earliest, but not the most permanent bloomers. The best for poles and tall standards are Paul Ricaut, deep carmine; Salvator Rosa, rosy pink; Jenny, mottled pink; Elise Mercœur, French white and pink; and Nathalie Daniel, very fine pink.

The late-blooming Bourbons are very numerous. Those best suited for walls and poles, are Souvenir de Malmaison, Sir J. Paxton, Pierre de St. Cyr, Louis Odier, Apolline, Bouquet de Flore, Madame Desprez, and Mrs. Standish.

Lastly, Hybrid Perpetuals are unequalled for fragrance, beauty, full-blooming, and hardiness. They are grown everywhere, and form the chief portion of the stock of every professional and amateur Rose grower. For greenhouse culture, in a rich loose soil, for early forcing, and for bedding, Hybrid Perpetuals should be grown on their own roots; but for lawns and poles worked plants are the best, and if worked with two distinct sorts on the same stock, the effect is splendid.

Hybrid Perpetuals may be classed in three, or at least into two very strongly-marked divisions. Among the first we have those noted Roses, Duchess of Sutherland, a splendid blush, suitable for dwarf standards or poles; Baron Larray, a finely-shaped rosy Pink, also suitable for every purpose; Madame Laffay, a good Pink, which adapts itself either as a dwarf or a robust standard. Seant des Batailles, the darkest of the old crimson Roses, and ne to be found in every good collection, though lately beaten by Seneral Jacquimenot and Paul Ricaut, which are of a similar ich vermilion, but more thoroughly double than the Giant; indeed lark Roses are seldom so well double as paler sorts. Lord Raglan is the best of the new Perpetuals of the Geant section, the colour line and the habit good.

In selecting Roses it would be advisable to obtain the catalogues of the most noted growers, and having provisionally determined on the sorts to be purchased, to visit the nursery and see them in bloom. The lists here given are rather intended to assist the mateur, than to specify dogmatically which are the best. I name those which, in my judgment, may be most satisfactorily taken, and from this time (July) to the middle of autumn, most of those named may be seen in flower, and the purchaser can determine for himself on the spot. Roses are extensively grown, for Rose stock is as profitable as any to the successful grower; and a visit to any of the great Rose nurseries will be useful in making a selection, as well as refreshing to that most healthy of our sentiments, the love of flowers.

"In a garden of delight

Have odour spirits blest thee,
Slumbering in a nest of light?

Then rest thee.

The most noted growers are Rivers, of Sawbridgeworth; Paul, of Cheshunt; Lane, Great Berkhampstead; Francis, Hertford, a noted grower of Roses on the Manetti stock; Cranston, King's Acre, Hereford; Godwin, Ashbourne, Derbyshire; and Harrison, of Darlington. In London, Messrs. Henderson, of St. John's Wood, take the lead for high class sorts, but none of the metropolitan nurserymen grow Roses to any extent; the atmosphere is quite unsuited to them.

A LIST OF TWENTY FIRST-CLASS NEW ROSES, (1856.)

HYBRID PERPETUAL.

Arthur de Sansalles, rich crimson purple, velvety. Medium size, but quite double. Very distinct and fine.

Bacchus, crimson. A great in provement on Geant des Batailles. General Pelissier, pale lilac rose. Very large.

General Simpson, carmine. Like Louis Odier, but deeper in tint. Josephine Lédechaux, bright pink, finely cupped. Very pretty.

Louis Magnan, pure white, with blush centre. Well formed and delicate looking.

Madame Knorr, deep pink, with rosy centre. Very beautiful just before the buds open.

Mathurin Requier. This is a most beautiful Rose, in the style of William Griffiths, but with larger and finer flowers.

Marquise de Murat, lilac rose. Large, globular, very double, and deliciously scented.

Pœonia, bright carmine. Large, cupped, and double.

Souvenir de la Reine d'Angleterre. This is a magnificent Rose, very large and double, the colour a bright rose; very bold; in every way desirable.

Souvenir du Petit Caporal, bright carmine. Very double, neat and compact, but of rather delicate growth.

Toujours Fleuri, crimson, shaded with violet. Large and full, and beautiful shape. Not a free grower, but does well as a dwarf standard.

Triomphe d'Avranches, deep red. Large, very double, and showy.

Triomphe d'Exposition, dazzling crimson. Large and beautifully formed. Robust habit and fine foliage. Quite worthy of its name.

Victor Trouillard, fine dark rose; retains its colour well.

BOURBON.

Impératrice Eugénie, rosy blush, with deep centre. The flower large and fine, and after the style of Malmaison. It is a splendid Rose, but does not always come to perfection, being very much influenced by soil and climate.

MOSS.

Impératrice Eugénie, rosy pink. Very double, and possessed of every good quality.

William Lobb. This is described as a blue Rose by the French. Its real colour is purplish crimson, shaded with slate, the blooms not very

ell formed, but coming in immense clusters. Novel and desirable. 7e must wait a bit longer for a blue Rose.

TRA.

ella Grey. This is a real yellow Rose, from Carolina. It was inoduced by Mr. Low, of Clapton. It was met with by Mr. Low, Jun.,
hilst travelling in Carolina, in the garden of the raiser, Mr. Grey.
1e flowers are large, and of a golden yellow; the habit free; it blooms
3ely, and promises to bid defiance to the flercest darts of Phoebus.
1essrs. Henderson, of St. John's Wood, have the entire stock, and it
1em now (1857) being sent out for the first time.

TWENTY-FOUR FIRST-CLASS ROSES OF 1855.

HYBRID PERPETUALS.

n Larray, rose. Very double, and cupped.

: Lyonnaise, flesh. Cupped.

te de Nauteuil, deep rose. Large and full, and fine shape.

l de François, Willermoz, rich crimson, velvety. The darkest rpetual known.

ness of Norfolk, bright crimson, under side of petals shaded with ight pink. A capital pillar Rose or for a wall.

ue de Meux, deep rosy purple. Large and full.

ral Jacquimenot, brilliant crimson scarlet. Belongs to the Bacchus d Geant section, but surpasses the latter considerably.

e de France, rich crimson. Fine shape, robust habit. Very sirable.

Fontaine, light crimson. Very large and full; a moderately free ower.

Ragian. One of the many improvements on Geant des Batailles; ge and full, and has proved worthy of its name.

ame Cambacères, rose. Cupped, full, and well formed; a free somer.

ame Trottaire, bright cherry. Good form and excellent habit.

ame Masson, deep crimson purple. Large and full; quite superb.

MO88.

- , pale pink. Double; a fine variety, but does not realize the idea a Perpetual as it has been described.
- n de Wassender, light crimson. Very fine.
- e des Mousses, pale rose. The best of the new Mosses.
- e de Blois, bright pink. Large; first-rate.

BOURDON.

Aurore de Guide. This is a truly splendid Rose. Brilliant crimson; rich and beautiful.

Omar Pacha, bright cherry. Neat, and very double.

HYBRID BOURBON.

Charles Lawson, dazzling crimson. Very large; good form.

NOISETTE.

Augusta, snlphur, well shaped; an improvement on Solfaterre. Marie Chargé, bright fawn, tinged with carmine. An improvement on Ophirie.

CHINA.

Lucullus, velvety, purplish crimson. Dark and rich, but in no way novel.

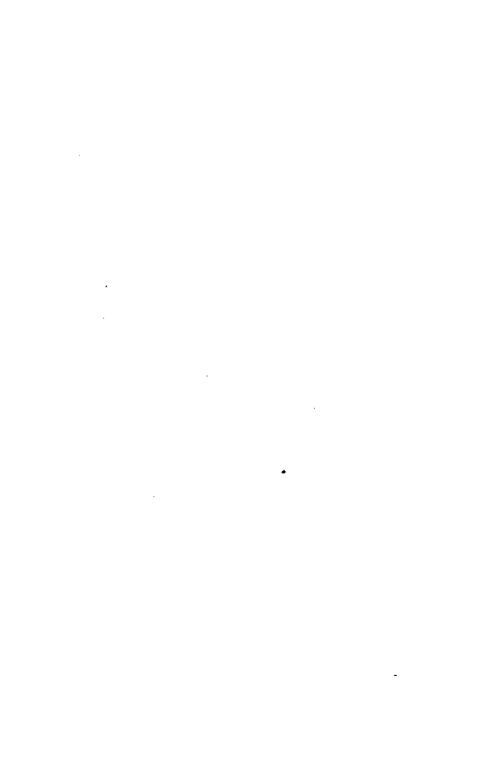
TEA.

Barillet Deschamps, white, shaded beneath with bright yellow. Very large and full.

TWENTY OF THE VERY BEST OLD HYBRID PERPETUALS.

Geant des Batailles, vermilion. Baronne Prevost, blush. Large and beautiful. Duchess of Sutherland, blush. Splendid Mrs. Elliott, crimson. Large and fine, but rather uncertain. Mrs. Rivers, blush. Very fine. William Griffiths, salmon pink. Neat. William Jesse, crimson. La Reine, brilliant rose. Large: uncertain. Pius the Ninth, crimson lake. Compact and free. Robin Hood, lilac rosy pink. Fine shape. Dr. Marx, rosy carmine. Superb. Anguste Mie, rosy blush. Large, globular, and beautiful. Baronne Hallez, crimson. Large and well-formed. Paul Dupuy, amaranthus. Very fine. Queen Victoria, white, shaded with pink. Souvenir de Leveson Gower, amaranthus. Large and fine. Mère de St. Louis, beautiful pale salmon, almost white. Large, Lady Stuart, white, flesh centre. Fine globular shape. Madame Vidot, blush-tinged salmon. Large and good. Leon des Combats, dark red.

The first twelve are the most desirable.





GARDEN FAVOURITES.

THE

DAHLIA:

IT8

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

BY SHIRLEY HIBBERD,

Author of "Rustic Adornments for Homes of Taste," etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON: FROOMBRIDGE AND SONS, PATERNOSTER ROW.



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THE DAHLIA.

CHAPTER I.

Bloom on in thy beauty, sweet child of the west, By the sunlight of heaven so softly caress'd; Bloom on in thy pride, and with statelier show, Fling around the rich charm of thy colour and glow; Shed on each patient heart the sweet smile of thy face, And teach us our duty in life's pressing race.

'Tis beauty that charms and enraptures the sense, And gives to each moment a bliss more intense; 'Tis beauty that wins us to virtue and truth, Making hope a fair shadow to guide us in youth; And wherever we meet it the joys of the heart Come around like the incense that flowers impart.

HISTORICAL AND BOTANICAL NOTES.

FLOBISTS have lately given a little attention to the beauties and uses of our native wild flowers. The field campions, speedwells, ragged-robins, crossworts, native heaths, and marshy plants are about to assert their dignity, and at the very moment when the gardens are surfeited with the gay productions of foreign lands, we are turning to the hedge-rows for choice border-flowers, and positively adding some of the commonest to our schemes of bedding. Gardeners are not botanists of necessity, but the gardener who has a taste for botany must always prefer pure botanical forms when he produces desired effects with them, to the best productions of floricultural art. To be sure the Dahlia is not a British plant, and in its present state has but few claims to the affection of the

botanist; but one cannot help thinking what a field of enterprise yet unexplored, our own wildings offer to the florist, when one remembers that it is but a few years since the Dahlia was known only in its normal form, and was cared but little about, except by the botanist. When we reflect upon the extraordinary changes this one flower has undergone, the British Flora seems to offer inexhaustible resources, and the day will come when enthusiasts, branded for their botanical crotchets, will carry away triumphs from the adherents to Floriculture as it is.

The merest tyro in botany will in an instant detect the place which the Dahlia occupies in the vegetable kingdom. It is a compound flower, and hence a member of the immense and interesting order, Compositæ, the one hundred and eighth of De Candolle's arrangement. The characteristics of a compound flower are seen in the assemblage together on one common receptacle of a number of distinct flowers, or florets, the union of which in a globular mass constitute the flower as we view it. In dissecting a compound flower, such as a daisy or a sow-thistle, we find that each floret has its own calyx, and its own ovary, and hence its own set of stamens and pistils; that which appears to form a calyx to the system of florets, or, as we should say, the calyx of the flower, being really an involucre, calyx-like in structure, and serving as such to the system of florets which make up the flower.

The order of Compositæ contains nearly eight thousand species, and these of course form many tribes and subdivisions when classified into groups. From its extensiveness, and diversity of forms, it is one of the most perplexing of any to the student, however well the leading features of compound flowers may be understood. The sixth sub-tribe, named Eclipteæ, is that to which the Dahlia is assigned. In the Linnean system it is a member of the nineteenth class, Syngenesia, and the second order, Superflua, having in its normal form both Stamens and Pistils in the central florets, but the florets in the circumference have Pistils only.

The Dahlia is a native of Mexico, and was first introduced to Britain in 1789, the then Lady Bute procuring plants from Madrid, whither they were first sent from the Spanish possessions. The species first introduced was D. superflua, the real parent of the show Dahlias of the present day. It its original form it attracted

so little attention that, according to report, the species was soon lost through mismanagement; but in 1802, no less than five other species were introduced, namely, crocata, scarlet; frustranea, scarlet; and aurantia, crocea, and lutea, yellow; though probably these were rather varieties of one or two species, the three last especially having a close relationship to frustranea. Cavanilles was the first to describe the Dahlia, which he did in his "Icones," after having seen it in bloom in Madrid, in 1790; and M. Thouin, of Paris, was the first who hit upon the proper mode of growing them. Thouin made them known by means of descriptions and coloured figures, in 1802; and in 1804, Lady Holland re-introduced to England the original superflua by means of seed from Madrid, and from that date begins the history of the Dahlia as a cultivated flower.

In its original wild form the Dahlia was a flower of variable colours, with a broad disc, and a single whorl of petals, perhaps not much better than a single marigold, and hence not very attractive to the floricultural eve. For this reason it was almost as much neglected as before in this country; but in France its capabilities were soon understood, and the importation of some French Dahlias in 1815, was the inauguration of a Dahlia mania. which for a time raged almost as fiercely as the tulip-mania of the seventeenth century. The continental varieties were splendid flowers, and soon excited the emulation of florists, not only on the continent, but in this country; so that from that time to the present, though the mania has long subsided, a healthy love of the flower has survived, and its cultivation has been so assiduously prosecuted, that we have thousands of distinct varieties, and every new season adds to their number. "In form and stature it is a proteus. in tints it is a vegetable prism. Neither are the form nor colours constant in the same individual. The first flowers will be single. and of one colour, and the last double, and of another hue; and such is the versatility of the self-colour of a parent, that its seedlings will be edged, or striped, or blotched, and altogether as unlike the mother as change of colour can make them."

The Dahlia is now the chief glory of the September shows, and earnest is the competition between rival growers to secure favour for their new flowers, and accumulate prizes for sorts that take

the lead. At exhibitions the Dahlia is tampered with perhaps more than any other flower, and "cut blooms" being exhibited, gives additional facilities for a clever hand to trim up the centre. and shape the outer petals, and so transform a middling bloom into the semblance of a perfect one. Of course quick eves are always on the alert to detect such tricks; yet many a patched-up specimen has passed muster, and taken prizes to which it was never fairly entitled. Still it must not be inferred that Dahlia exhibitors are more prone to unworthy acts than other people; our leading growers of this and other florists' flowers are men of high ability and as high moral character, and the exception in no way detracts from their honourable regard for each other, even when competition runs highest, or when judges, anxious to do right, seem to favour flowers of but second merit. Indeed much of the difficulty in judging the Dahlia arises out of the fact that the capabilities of the flower are yet but partially developed. What have we in pure whites? What variety in vellows? Why, we are glad of any light flower, even if its form be bad! and the raiser of a white or yellow of any fair pretensions to excellence may still make sure of realizing a fortune. Cox's Defiance-still one of the best old vellows-was sold in dry roots for one hundred and fifty pounds. and re-sold in dry roots for two hundred and fifty; and by a portion of the profits the buyer realized two thousand pounds.

Indeed as much as two thousand pounds have been paid for a Dahlia; and as an instance the other way, the raiser of "Beauty of the Grove," a sort that was more slandered than any Dahlia that ever presented points of real merit, and that crowned winning stands in shows open to "all England," the raiser of this was compelled to litigate to get even a crumb from beneath the nurseryman's table, and if he got ten pounds clear of law expenses, it is as much as he did, though, in proof of its excellence, it holds a high place in all good collections.

In its constitution the Dahlia is peculiar. It is a native of the table land of Mexico, and is found in situations where frost seldom or never attacks it. Still it is not a tender plant; it takes heat as kindly as any choice thing in cultivation, and it sustains itself at a temperature as low as 28°, that is, it will bear four degrees of frost without permanent injury, though such a temperature

estroy its foliage, and prevent it rallying that season. It wer, very hardy and enduring down to that point, and in and exposed situation bears the autumn night frosts better low positions, showing that certain degrees of cold with ir are less injurious to it than even fewer degrees of cold ich moisture. For this reason Dahlias bloom later in dry is than in damp ones, and this might be expected of a hich comes from dry and exposed situations.

otatoe is a native of the same region as the Dahlia, and a striking similitude of constitution between them. Both orous annual stems, and both produce a considerable amount reground substance during the growing season; but there striking difference, that the tubers of the potatoe are productions that have no general connection—they are ed in one general crown; but in the Dahlia the fusiform a connected by a crown, which is perennial in sending up not not part of the root will produce a plant unless it a portion of this crown; whereas each tuber of the potatoe ed with buds, each of which is capable of becoming a As in the case of the potatoe, the fleshy root of the Dahlia;—it is indeed an agreeable dish when properly cooked, petals of the flower are wholesome and pleasant additions ad.

CHAPTER II.

LIMB new hope to a lost one all sadly forlorn,
Thou bringest thy blossom when summer is gone;
As a token of beauty when sunlight departs
To cheer and enliven our desolate hearts;
So, even in sorrow some gladness may bloom,
To make holy the pathway that leads to the tomb.

SPRING WORK.—PROPAGATION BY CUTTINGS AND DIVISIONS OF THE BOOT.

THE Dahlia is so seasonal in its growth and rest, it hybernates so regularly and so decisively, and its culture comprises such a regular routine of operations, that it will be necessary to devote a separate chapter to each department of its seasonal management and preservation, and we naturally begin with the modes of propagating.

To propagate the Dahlia for private use, a very different plan must be followed to that adopted by nurserymen, who, to increase stock rapidly, resort to methods that render the stock, however high priced, almost worthless. The fact is, new Dahlias that gain a little fame, are in great request for many seasons after, and the public are content to pay five, ten, or fifteen shillings each for plants of fashionable sorts; and as leading flowers are always in great demand—indeed the demand usually exceeds for a time the means of supply—stock is manufactured, and the cuttings driven on in excessive heat and moisture, so that their constitutions are shaken for a season at least, frequently ruined for ever. February is quite soon enough to begin Dahlia propagation. By that time the tubers will have had sufficient rest, and with gentle heat will break well.

To give them their first start make up a hot-bed, and as soon as the heat rises freely and generally, cover the surface of the dung with coal-ashes or sand. Then examine the dry roots, and cut away every decayed or diseased portion;—if they have been properly kept, there will be little that require to be removed. Where the old stem has been, daub on the root some grafting

clay, which serves to keep the top parts, where the incipient buds are, in a moist condition, as well as preventing the entrance of wet to the hollow of the root. When the roots are clayed, spread them evenly all over the bed, working the sand or coal-ashes amongst them, so that their crowns are just level, but not covered by the material. Moisten the whole with tepid water, and maintain a steady temperature of 60°, and no higher. Give water and air rather freely, and in a short time the crowns will be full of shoots.

When the shoots are two or three inches long, it is time to make ready for potting them. Another hot-bed will be necessary for this work, and it is best to put each into a separate thumb pot, though of course four or five-inch pots may be used, but then great care must be exercised not to break the roots in the next shift. Those crowns which have a number of shoots must be reduced to one—a feat to be accomplished by gently moving the shoot backwards and forwards, while held between the finger and thumb, until it comes out of the socket. But if each shoot can be cut clean away with a portion of the tuber attached, it will root more quickly and surely. Where a root makes only one shoot, it should be allowed to grow to four inches, and then cut it clean off above the two lowest buds, which will immediately push and afford two more cuttings. The cuttings are to be put in next the pot, so as to touch it inside, even if put singly into small pots, for they make root much more readily than when placed in the centre. Any light, moderately rich soil will do, with half an inch of pure silver-sand on the top, and plenty of drainage below. Dibble them in with a small goose-quill, press them moderately tight against the inner side of the pot, and plunge in a hot-bed, on which a layer of coal-ashes has been spread to keep down noxious fumes. Moderate shade and tepid water, whenever the top of the bed appears dry, will, in a temperature of 60°, cause them to strike quickly, and you need not lose one out of thousands

As soon as the pots are filled with roots, re-pot them into threeinch pots, and at this shift use a sweet compost of one-third leaf mould, two-thirds well-rotted turfy loam, and a little sand to keep it open. Plunge again just to give them a start, and as soon as they have commenced a new growth, remove them to the greenhouse or a cold pit, for from the moment that a Dahlia has fairly rooted, artificial heat is an injury to it, and at any time a higher temperature is its ruin. In the frames they should have air every day, except during frosty weather, but must be shut close at night, to guard them against wet or frost. They will soon want another shift to four and a half-inch pots, and this should be given as soon as they have filled the small pots with roots. Nurserymentare compelled to keep many things in pots too small for them, for convenience of packing, but a private grower should never allow Dahlias to get pot-bound; it starves them in their infancy, and materially injures their blooming.

By the process above described, Dahlias may be propagated to an immense extent;—we have known near two hundred cuttings to be taken in succession from the shoots supplied by one root. This may seem like overtaxing the plant, but the great evil arises from the high temperature in which such sharp practice is generally performed. If you have one or two dry roots of first-rate sorts. you will act wisely to propagate them as long as you can take cuttings fairly, and every cutting will make a good plant if pushed on gently at a temperature of from 55 to 60°, provided the root has had a good winter rest. But to plunge them into a temperature of 70, 80, or even 90° before Christmas, and to keep the same game going till July or August, is simply to manufacture a lot of blanched waxen stems, that never can recover strength to carry a decent flower. When people pay from five to fifteen shillings for plants, such a system of producing them is really too bad. But with fairplay, cuttings may be taken freely from February to August; those taken late will of course be kept in pots over winter to form early blooming plants next season; but even as late as June the smallest cuttings, well managed, will make good plants to bloom the same season.

By division of the root the propagation cannot of course be so extensive, but an amateur, who is pretty well stocked, may not care to do more. Cut them from the crown downwards, leaving one or two buds to each division, and plant them out in the middle of April; or if started earlier in a gentle heat, which is much the best way, pot them, and keep them safe till all fear of spring frosts is over.

CHAPTER III.

PLANTING OUT.

THE majority of those who use Dahlias as a necessary part of the general garden stock, take no trouble to propagate them, but secure plants ready for putting out, and the time when orders are given for them is invariably the month of May. Now if men of high standing, such as Turner, of Slough; Brittle, of Birmingham; Keynes, of Salisbury; Barnes, of Stowmarket; and half a dozen others who take a pride in the flower apart from what they gain by it, be applied to, however early or late, stock will be sent out that may be relied on; but the majority of small nurserymen, who get a few dry roots of noted sorts, and determine on making a fortune by cuttings of them, supply plants that have been driven on in heat enough to cook them, and which of course are worthless. I name this matter again to shew that ordering in May is not the safest way to have a noble show in autumn. The trade get their supplies in April, and of course have better plants than are obtained by those who wait till May; and it is better in ordering choice sorts to be early in the field, keep them in their pots sheltered from frost, yet otherwise well exposed, and by the time they are planted out they will have gained strength to set for bloom well.

The soil to plant Dahlias in should be light, rich, and deep. However well suited for them as to texture and general quality, it should be liberally manured before planting, and if manured and ridged up a fortnight before planting, it will, when levelled down, be in better tilth, and the plants will thrive better accordingly. The best Dahlia soil is a deep friable loam, which has been trenched two spits deep in November, and ridged up till spring, the top spit being kept at top, and the manure laid on and dug in immediately, one spit deep in the final preparations for planting.

Before putting in the plants, it is best to mark the places for them, so that no error may occur in the disposition of their colours and heights. A good arrangement when they are planted in straight rows, is white, orange, purple, yellow—white, yellow, lilac, purple—white, purple, lilac, scarlet—white, scarlet, lilac, orange—white, etc. The next thing is to place the stakes, for none but a slovenly grower will insert the stakes after the plants are in; it is a plan attended with risk to the roots, and even to the stems of the plants, which may be snapped off by the elbow or the knee. Give them plenty of room, for crowded Dahlias never bloom well; they get drawn, and bloom weakly. Where they are planted in compartments, which is by far the best way, let the dwarf-growing kinds be five feet apart every way, and the tall ones six, indeed if you have room you may increase the distance of each one foot, with benefit to your plants, especially if the



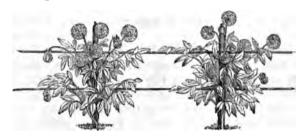
soil is rich. The thinnings of larch plantations make the best stakes for Dahlias.

When the stakes are in, enter in your note-book the names of each, according to the labels on the plants, for it is always best to have a duplicate arrangement in event of a label disappearing, for birds will frequently carry off wooden tallies, as the Jackdaws did lately some hundreds from the Botanic Gardens at Cambridge, which they used for their nests. A careful gardener never trusts to labels only. If the ground has not undergone any special preparation, turn in a good spadeful of rotten dung at the foot of each stake, and mix it well with the soil.

Dahlias will not bear frost, especially young plants that have

just come from the nursery, and it is therefore a folly to put them out too early. If you have started them yourself, and know that they are well hardened, you may get them in as soon as the May weather seems a little settled; but if you have received some valuable varieties from a nursery, it will be the best to re-pot them in pots a size larger, and keep them in a cold frame for two or three weeks, giving plenty of air and water, and gradually inuring them to exposure; and if they are a little spindly, top them and strike the tops, taking care, however, to leave some leaves below the cut. This will strengthen them by a salutary check, and render their final planting a safer operation. In any case they should be well exposed before being put out.

Choose a dry day for planting; bring out the pots and stand each where the plant is to remain; and, pardon me, experienced reader,



Dahlias tied to espalier fence.

if I give the novice a rule for turning out plants without fear of injuring them. Open a hole with a trowel, and drop the pot into it, level with the general surface, and fill round the pot so as to imbed it neatly, pressing the earth to it with the hand, just as if the pot with the plant in it was to remain there. Then give the pot a twist round and lift it out, and there will remain a clean firm hole, ready for the ball that is to be dropped into it. Place two or three fingers of the left hand on the soil of the pot, making the palm of the hand into a hollow, so as not to break the tender plant, turn the pot up, give the rim a gentle tap on the side of the wheelbarrow, and, presto! you will have the ball neat and complete in your hand, and have only to turn it over neatly into the hole, which it fits exactly. Dress the earth

up to it, and you will have planted it without hurting the tenderest spongiole of its many juvenile roots. In re-potting and bedding out, whenever you wish to keep the ball entire, proceed in the same way, and you will never have an accident. When all are planted gather up the pots and take care of them, another rule applicable to bedding generally; give a good watering, and the next day rake the surface over, and make all neat and tidy.

Where Dahlias are used to adorn a border, they may be trained out on a rough espalier fence, formed of hurdles or larch poles. In such a case the breast wood is removed, which benefits the side ones, and when they come into bloom they form a magnificent screen of flowers.

CHAPTER IV.

SUMMER CULTURE.

THE first work after planting is to see that the shoots are properly tied to the stakes as they need it. The foliage of the Dahlia is very dense, and the stem very brittle, and unless proper care is taken to train them out in time, the first high wind will snap off the unprotected branches, or they may even break with their own weight when loaded with moisture by a heavy rain. The superfluous shoots should be cut clean away, so as to keep the plants well open, and the branches regularly distributed. The cuttings will readily strike, and make an increase of stock if it be desired; but after the end of June, cuttings put in to root should be grown on in pots for planting out the following season. as it is too late for them to flower the same year. There must be an occasional inspection of the ties, to see that they do not cut. for the stems swell and lengthen so rapidly when once they make a fair start, that if not loosened and re-tied in time, they may break through under the bast, and the best heads be lost.

A regular part of summer routine is the mulching of the surface round each plant with cow-dung, which is intended to enrich the root when water is administered, and to preserve moisture to the root during drought. I mention the practice here, however, only to condemn it. It is quite true that at every watering some nutriment is carried down to the roots, and that moisture is preserved about the surface soil; but that is the evil, for a plant will always send its roots in the direction of nourishment, and mulching tempts them to the surface, and they will even work upwards into the top layer of dung, and the very first time that watering is neglected the sun scorches them, and does irreparable injury. But this is not the only objection to mulching. A layer of dung on the surface soon becomes a harbour for insects of all kinds. and earwigs, the bane of the Dahlia, make themselves snug in it, unknown too often to the gardener, and at night they sally forth and make what havor they please among the plants, and defy all his traps; whereas if the surface is clean they find no shelter there, and will go into any trap that may be placed for them. Many whose experience has taught them that mulching is an objectionable practice, have adopted a medium course, of removing the surface soil in a ring round each plant, then spreading a surface of dung, and covering it with the mould that was removed: but though this is less prejudicial than spreading it on the surface. still it tempts the roots upwards, whereas the more we can make the roots of a plant, especially one of summer growth only, descend, the more we secure it a cool moist bottom, and make it its own protector against drought, which is a welcome relief to the labour of watering. Put plenty of manure below, let the ground be stirred deeply, and mulching may be done away with. However I tell you the established practice, and I give you my commentary on it, judge for yourself, and act according to the teachings of experience, which, even if they have to be paid for, are a hundred-fold more valuable than any precepts.

As to watering, the necessity for it may be lessened if the plants are dealt fairly with from the first, but it will not do to leave Dahlias to fight it out with a long drought. They must never flag, they like moisture, and liquid manure is, highly beneficial when they have attained to some substance, and are established in their summer growth. The worst of watering is, when once you begin you must not leave off till rain comes, and at every watering drench them well, and soak the ground thoroughly; a mere surface sprinkle is more harm than good to everything.

When the ground is really getting dry, first syringe the plants, or give them a fine shower from a Read's engine, so as to moisten the foliage and the top soil; then drench the roots well, and give them another fine shower to conclude with. The evening is of course the proper time for it.

An occasional forking of the soil between the rows will be beneficial during the summer growth; and at all times keep a sharp look-out for insects.

CHAPTER V.

"Though severed from its native clime,
Where skies are ever bright and clear,
And nature's face is all sublime,
And beauty clothes the fragrant air,
The Dahlia will each glory wear,
With tints as bright and leaves as green
As on its native plains are seen.
And when the harvest-fields are bare,
She in the sun's autumnal 'ray,
With blossoms decks the brow of day.'"

MARTIN.

AUTUMNAL TREATMENT. BLOOMING.

As Dahlias proceed towards blooming, the anxieties of the grower increase. The grand army of earwigs make their annual campaign, and ravage the grounds in their nocturnal foraging expeditions; then the elements wage war with them—drenching rains, scorching suns, and "howling blasts" that "drive devious," do all they can to shake, shatter, and mar them, and yet you make as sure of a Dahlia show as of any one grand flower that comes into the catalogue of floral enterprises. And what if there are a few difficulties to contend with; why, if floriculture could be reduced to a rule of thumb, so that every fool could make as sure of success as the wisest, it would not be worth an hour's attention from any sober man. It is the conquest of difficulty, the warfare eternally waged against adverse circumstances, in every pursuit of life, that makes life acceptable, that keeps it sweet, and

by nerving the heart-strings to persevering efforts, makes the heart itself strong in hope, and keeps it ever leaning to the future, and pressing to its goal.

The most important summer operation with those who intend to exhibit, is to nip off every flower-bud as fast as it appears. until the plants have attained their full vigour, and then to allow only every third bud to come to maturity. The first blooms frequently come false, and therefore it is no advantage to have them, and by deferring the bloom awhile, the plants accumulate pulp, and the after blooms come true and of very superior quality. All superfluous breast-wood must be cleared away as fast as it appears, and only a moderate number of the stoutest and shortestjointed shoots left for blooming. After a few days rain Dahlias will frequently shoot at all points, and at such a time should be looked over, and every break not necessary to the completeness and symmetry of the plant should be rubbed off. All shoots that grow towards the centre should be cut clean off, and if any two branches cross each other remove the weakest, and where the flower-buds show at the top of the joints, the side shoots next the buds must be picked out, and but a few buds left on each remaining joint for flowering. Earwigs must be closely hunted, and traps set for them, which must be examined daily, and the insects blown out into salt and water.

Every bloom selected for exhibition should be shaded from the sun, from the moment it begins to expand to the time of its being cut; but it is unwise to shade the yet half-formed buds, for if they have not a good share of sunlight in their early stages, they do not come true in colour. There are various ways of shading Dahlias; the buds may be simply covered with a gauze bag, drawn together at the stem, but with plenty of room for the flower to expand. This will protect the flower from the ravages of insects, until it can be covered with a proper shade.

It requires but little ingenuity to shade the blooms properly; many use wire frames covered with oiled calico or oiled paper, these are light, efficient, and not inelegant. Another mode in common use is a flat board mounted on a stake, so as to form a table for a flower-pot. The table has a slit for the stem to pass through, and the flower is brought down upon it, and the

pot placed over it. Another mode is to mount a flower-pot on a stake, by means of a cord passed through it; but these dark shades somewhat mar the colours, which require a moderate amount of light to be produced in perfection. Small bell-glasses washed with whiting and size, so as to produce a soft white light, would be preferable to flower-pots. But the best shade is a box constructed on purpose; it should be made of deal, with a sloping roof, and the front glazed to open as a door. The bottom should have a slit to pass the stalk through, and the bloom should be brought inside, and the glass side turned towards the north. If well made and painted they last many years, and are the best shades that



can be used. They may be had of Phillips and Co., of 116, Bishopsgate Street, at from eighteen-pence to two shillings each.

Watering must be continued whenever necessary, and the ties must be occasionally loosened and re-arranged as the stems swell and the side shoots make progress. The strength and beauty of the blooms may be very much promoted by watering the plants once a week with a solution of nitrate of potash—one pound of the nitrate to twelve gallons of water. The same solution will be useful also for fuchsias, carnations, and chrysanthemums. I have used it for most kitchen crops with especial benefit, especially lettuces and celery.

CHAPTER VI.

The' from the earth no more supplies they gain, The splendid form, in part, and lovely hue remain.

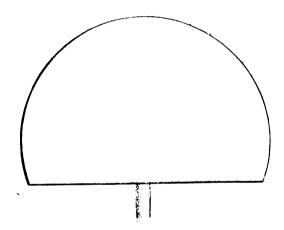
ON EXHIBITING THE DAHLIA. PROPERTIES OF SHOW-FLOWERS.

What a splendid spectacle is a bed of Dahlias in full bloom! and if we could attain to that philosopher's stone of floriculture, a real blue, the world would go frenzied, and would live on Dahlias for three months every year. It is said to be impossible, and in direct opposition to the law of colours in the vegetable kingdom. But what do we know of the law of colours, are we not in our infancy as to the study of vegetable physiology: if a blue tropæolum and a golden vellow rose have been obtained at last, why may we not hope for some day obtaining a blue Dahlia? Philosophers may pooh, pooh, the idea, but they must assign the limit of possibility in the sporting of flowers, before we accept their data as to what may take place within it. As to colours generally, crimsons, scarlets, plums, and maroons are plentiful; good vellows are rather scarce, and hence highly prized, but whites most scarce of all. Fancy flowers are getting more and more fashionable, and on the exhibition stand they have a charming effect if well grouped. They should be grown in somewhat poor soil; if the soil is loaded with manure they are apt to run back to selfs.

In sending blooms to Exhibitions, it is necessary to have a few boxes made expressly for the purpose, to hold sets of twelve, eighteen, or twenty-four blooms each. The lid may be on hinges, or, better still, made loose, so as to lift off. At a proper distance below the lid there should be a flat division, or shelf fitting tight to the box inside, and this should be pierced with holes to receive a number of tin tubes to hold water. Pass the stem of each flower through a cork or wooden plug made to fit firmly in the top of the tube, and if the parts are well and firmly fitted, so that the tubes cannot wriggle about, they will travel safely any distance, and keep fresh to the end. Boxes for twelve blooms are preferable,

and two may be placed together to make a twenty-four stand, but the cautious exhibitor will send a third box containing duplicates to supply any that may suffer damage on the way. If the flower-stems do not fit tightly in the perforated corks, plug in a little paper, and mount them all in a firm manner, and without a single wound to the stems. The blooms should be cut late on the evening preceding the day of exhibition, unless the distance is great, in which case cut very early in the morning, while the dew is on them.

"Properties" are everything with Dahlias, and judges count points as bankers do coins; that is, with sharp eyes for counter-



feits, and those below the standard. The rules generally agreed upon are:—

1st.—The flower should in the outline of its disc present the figure of a circle, and in bulk form two-thirds of a ball. The rows of petals should describe regular rings, and should lie over each other as evenly and regular as the slates on a new roof; the sizes gradually diminishing to the centre, which should be "well up" before the back or guard petals fail.

2nd.—The petals should lie close over each other, so as to conceal their bases; they should be broad at the ends, free from

notch or serrature, firm in substance, and smooth in texture. They should gently cup, but not so much as to "reflex," or show the under sides. Each row of petals should be of the same size, the sizes gradually diminishing upwards, and equally expanded in the rows; the centre should be close, firm, neat, and well coloured.

3rd.—The colour should be dense and clear; for, however good the form, poverty of colour renders them worthless. Edged flowers should have their tints clearly defined, and penetrating through the petal with an appearance of solidity; loose blotches and chance stains being blemishes that no judge will excuse.

4th.—Size is not of so much importance, and many of the most desirable flowers vary considerably in this respect. But if good in other respects, the larger the flower the better.

Mr. Glenny, whose judgment of properties is law, makes the following remarks on the "Faults of Dahlias:"—

There are many decided faults in our best Dahlias, and there is a great laxity among persons who presume to be judges, because they do not weigh the blemishes when deciding upon the rank a flower should hold. High shoulders, flat faces, indented petals, sunk eyes, confused eyes, thin petals, ribbed petals, pointed petals, narrow petals, vacancies between the petals, quilled petals, soft petals: here are twelve decided faults. Then a flower may be too open, that is to say, like so many wide-mouthed funnels; and the petals may form a rosette instead of a smooth outline, or may be deficient of a true circle-inclined to oval or irregular surface, even if smooth. Some shew the under side of their petals, which are invariably a worse colour than their faces. The texture may be papery instead of velvety; the petals may be too broad; the flowers may, according to the fashion, be too small or too large. We have here made out twenty distinct faults that may be found among Dahlias, and in four cases out of every five judges will call a variety first-class with half-a-dozen of these blemishes, that would be seen in an instant by a connoisseur. thought half-a-guinea too much for a first-class flower, but we dispute the rank which new flowers are pronounced worthy to hold when they should be placed in the second or third. But we have another fault yet to record, and we have been suspected of shirking it, because we have written favourably of particular flowers which have it in a remarkable degree—we mean reflexed petals. Princess Radzville, which we patronized, has reflexed petals; Morgan's King of the Dahlias still more, and yet we pronounced these two flowers good. Why? Because of the twenty-one faults common to Dahlias, the reflexed petals is only one, and when we judge a flower, we can see how many of the faults detract from its excellence, and we hold the great properties to cover a multitude of sins. If it be round in the outline, form two-thirds of a ball, centre well up, petals symmetrical, and flowers compact, we can afford it to lose the one point, and yet place it high.

CHAPTER VII.

WINTER CULTURE-TAKING UP AND STORING THE TUBERS.

In former treatises I have dwelt upon the necessity for allowing plants to go to rest naturally, and especially of allowing those that have tuberous or bulbous roots-which roots at takingup time contain the germs of the next season's blossoms-to accumulate their sap from the stems, their removal before the sap has fairly descended being decidedly prejudicial. This applies to the Dahlia, which is cut down by the first frosts, and especially if those frosts are accompanied with damp; but there should not for that reason be any undue haste in taking up the tubers. When the tops turn black, cut them down to a healthy green part of the shoot, and allow the green stems to remain until they also begin to blacken; and by that time the tubers will be ripened, and their sap stored up for another season's growth. A few slight frosts, however they may act upon the foliage, do no harm to the tubers; on the contrary, the check above hastens them into rest, and gives their juices that viscid character which is an evidence of a complete cessation of growth for the season. A frost which would get into the ground a few inches, would of course do much mischief, but Dahlias are stored away out of its reach long before it acquires such severity.

When you cut them down finally, which should be done as

soon as the tops wither, take up the roots at once, and if they come clean out of the ground dry them gently, and store away in any dry place secure from frost, labeling each to prevent confusion at next season's planting. But if the soil clings to the tubers they must be washed and dried before being stored away. With valuable sorts it is a good plan to strike two or three of each kind late in August, to keep through the winter; but the soil must be perfectly dry before they are put to rest, and no wet or frosts allowed to reach them. A good place for them is to lay the pots on one side under the stage of a greenhouse. They must be occasionally examined during the winter, and all decaying stems or roots removed.

It is a very safe plan to hang them roots upwards, in a dark dry shed; or to spread them on one side in clean wicker baskets, and cover with short dry hay, and place the baskets in a dry airy loft. In looking them over occasionally, take care to throw away any that are decayed, unless they are of valuable sorts, in which case, wash them clean, cut away the infected portions, and dry them again, but do not mix such with other tubers, for they may again commence decaying, and will taint any that are in their vicinity. They keep better, and come out cleaner if taken up in dry weather, but at the season for such operations, dry weather cannot always be waited for.

CHAPTER VIII.

PESTS OF THE DAHLIA.

THE succulent nature of the Dahlia renders it a welcome feast to many insect tribes. In its early stages of growth, caterpillars and slugs are its principal enemies. A quick eye and a vigilant hand will do much to keep these down, or they are trapped by means of cabbage or lettuce leaves put down at night and taken up early next morning. In dewy mornings a dusting with fine quick lime, by means of the *Boite à Houppe*, will prove effectual against the multitudes of small slugs that are so plentiful in summer, and in dry weather watering with clear lime-water will be

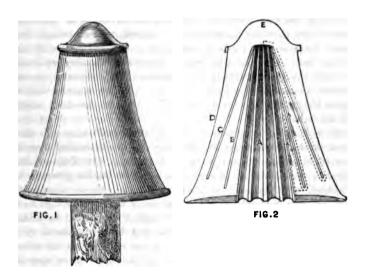
useful. If slugs prevail to any great extent, make a circle of fresh lime round each plant, and every morning gather up all the slugs that are visible on or about the plants.

Another enemy is the thrips, which sucks the juices, and takes the very colour out of the blossoms; or if they be white, the thrips still injure them by staining the petals, and spoiling their substance. The thrips are most prevalent in dry weather—moisture is their great enemy, and hence the chief preventive is the syringe. If once the thrips get the upper hand, all the early blooms will be ruined, but they may be kept under by copious drenchings till the autumn renders it unnecessary.

But the earwig, (Forficula auricularis,) is the great untiring enemy, whose guerilla warfare is most harassing, and against him special implements of assault must be prepared. He comes at night, makes his feast, and retires before morning. You cannot prevent his advances, for he is winged, and can alight where he pleases. You must meet him by stratagem, and take him in well-laid toils. Here it is that the earwig has more to answer for than the mere havoc he commits, for sober people who love Dahlias forget all the lessons of grace their flowers teach them, and convert their gardens into Golgothas; they stick lobster claws, flower-pots, cockle shells, and all kinds of ugly and abominable objects high in air as earwig-traps, so that the very ground which is dedicated to the beauties of Flora is made to grin horribly with death's heads and cross-bones.

But these ugly things are efficient traps, and so they are borne with. A little moss stuffed into a flower-pot mounted on a stick will prove a real good trap for earwigs, as indeed will anything of a dark close nature, into which they can retreat as they come from their nocturnal forays. Some use bean-stalks dried and cut into six-inch lengths, the stalks of the sunflower, or Jerusalem artichoke are also applicable. The stems of Heracleum giganteum make capital traps, if cut into lengths ending about an inch and a half above every joint. As soon as they are dry, stuff a few leaves of any kind in at the joint-end of the tubes to darken them, and tuck the tubes in anywhere amongst the stems of the Dahlias, and every morning they will be found full of the insects—that is if you have any. The tubes may even be painted for appearance

sake, and so preserved for several successive seasons. But the most efficient implement is that known as "Edwards' Earwig Trap," a few of which should be in the possession of every lover of a garden, first, because by its means the ground may be cleared of every earwig in "no time," and secondly, because they abolish at once and for ever those abominable beaks, snouts, and tin-pot decorations that so many resort to who grow Dahlias. It is really a wonder that flowers have courage to open their pretty eyes when such ugly monsters are day and night staring and grinning at them.



Edwards' Earwig Trap is here figured. Fig. 1. represents its external appearance, which is that of a bell-shaped box; it is made of iron, japanned, and its colour a dark olive green; it is three inches in diameter at bottom, and four inches high. In Fig. 2 the inner construction is shewn. A is a fluted cone open at top and bottom. B is another cone of plain metal, joined to the top of the cone A, but having a wider base, so that there is a clear space about half-an-inch wide between the cone A and

the cone B. C is a third cone, joined to the top of the others, but spreading at the bottom, so as to leave about half-an-inch space between it and the middle cone B. D is the outer case, fitting closely round the base of the cone A. E is a moveable lid or cover.

In using the trap, the training stick is placed inside the cone A, the projecting portions of the flutes hold the stick tightly, and there are spaces for the insects to crawl up; a little coarse sugar is placed inside the trap. The insects enter the trap through the opening at the top of the cones, and passing down the outside of the cone C, drop on to the bottom of the case, D; they are now effectually imprisoned, for there is no other outlet than the hole by which they entered, to reach which they must traverse the whole up-and-down route indicated by the dotted lines and arrows in Fig. 2, besides which they will have to turn the sharp angles at the bottom of the cones, a process almost impossible to them from the peculiar construction of their bodies, the legs being all at one end, and the chief weight at the other.

Here then is a certain means of ridding Dahlias of their most inveterate enemies; the efficiency of the invention may be judged from the fact that such florists as Mr. Turner, Mr. Keynes, and other of the most celebrated Dahlia growers in England, trust entirely to them for trapping these abominable vermin. Mr. Edwards says that "as many as sixty earwigs have been caught in one trap in a single night." It should be added that their appearance is ornamental, and being japanned of a neutral green, they do not obtrude upon the eye as all other objects do that are used for the same purpose. They may be obtained of the inventor, Mr. E. Edwards, St. Paul's Square, Birmingham.

CHAPTER IX.

SEEDLING DAHLIAS.

THE Dahlia sports freely, and affords a fine field of enterprise for the ambitious florist. As it is a late bloomer, it is necessary to be in time if seed is to be saved of any desirable varieties. and early blooms should be marked for the purpose, so as to have it well ripened before ungenial weather sets in. Save only from the best models of form and colour: the double flowers which are partially fertile are those to be preferred. Gather the seed as soon as ripe, and hang the pods in a dry shady place, and as soon as they turn brown, separate the seeds, dry them in the sun, and stow away till the following March. They are then to be sown in light rich soil, and placed in a gentle heat, and, as soon as large enough, transplanted into small pots, after which their treatment assimilates to that described for cuttings-As soon as frosts are past, plant them out in a good light soil a foot apart, and treat in every respect according to the instructions already given. Seed may be sown in the open air at the beginning of May, and with such treatment very fine plants may be produced. As soon as they bloom inspect them carefully, and throw away all that are defective in good qualities, saving the best for another season's blooming to "prove them," after which ordeal those of real value may be propagated in the usual way. The best of seeds is that every one has a chance; a shilling packet, if well saved, will be pretty sure to produce some real good flowers, even if many bad ones; and half-a-dozen well-doubled, well-shaped varieties are worth the little trouble required to produce them.

CHAPTER X.

DAHLIAS IN BORDERS AND SHRUBBERIES.

ENOUGH has been said already as to the constitution and general culture of the Dahlia to enable any one who may have no idea of ever becoming an exhibitor, and who may even shrink from entering on high-class amateur labours, to use the Dahlia successfully as a border ornament, for which it is, indeed, so well suited an account of the richness and lateness of its blooms. But as some few of the operations may be simplified for those who "don't want much bother," I will here make a few additional notes.

If you want good Dahlias at little cost, select the best old sorts, and either get young plants early in May, and put them out as directed in Chapter III., or secure dry roots early in the winter, when they may be had at a low rate; and at planting time each root may be split in two, provided there is a bud to each division, and may be planted out at once where they are to remain; not, of course, till frosts are over. Or, if you like to take a little extra trouble, you may start the roots by planting them in some light loose earth in a box, and keep this in a warm room till the roots shew signs of breaking, when they may have the benefit of the sun every day, and be taken in at night. If this be commenced in March or early in April, the plants kept moderately moist, and exposed as much as may be safe for them, they will be in a forward state by the middle of May, and may then be divided to greater advantage, and planted out in their blooming quarters. If you are in haste to plant them out, take care to place an empty flower-pot over each at night, stopping the hole with a piece of tile to confine the heat which rises from the earth, and keep out the night frosts. Where Dahlias are extensively grown, the plants intended for early blooming are very carefully tended in this way even till the end of May, and in a limited garden such an attention can hardly be considered irksome, and it gives the

re of abundance of bloom a fortnight earlier than they therwise be obtained. Bedding Dahlias, such as the . and some few dwarf show varieties, make grand beds d down judiciously. The Crystal Palace has, no doubt, ed many on the use of Dahlias as bedders, though Dahlia quite old features in many of the best gardens. The inds may even be used for bedding, if, when they have full growth, you take them firmly in the hand near the d give the stem a twist so as to crack it longitudinally. breaking it transversely, then lay them down in any ent you like, and abundance of blooms will be the result ight check which the twist will give them. But, of course, owing kinds with rich colours, the form being of less con-, are the best for the purpose. Gaines's Dwarf, a purple twenty-four inches; Mrs. Labouchere, buff, thirty inches; 1rthur, a magnificent crimson, twenty-six inches; and any 'elindas, according to the colour required, the purple and seing best of them, are those which a beginner should it to, and other sorts introduced to the system as expeav suggest.

[·] Lately raised by Mr. Fleming, of Trentham.

SELECTION OF VARIETIES.

FOURTEEN NEW DAHLIAS OF THE HIGHEST MERIT.

Lady Popham, (Turner.) White, delicately tipped with lavender; of the finest form. The best Dahlia of its class; a winning flower; four feet. Cherub, (Holmes.) Bright light orange yellow; good form, and very constant. A striking new variety; four feet.

Midnight, (Fellowes.) Dark maroon, nearly black, shaded and edged with purple. Truly a magnificent flower, (frontispiece two-thirds natural size;) three to four feet.

Mrs. Turner, (Church.) Quite new in character; fawn colour, with yellow at the base of the petals, the ground colour becoming more conspicuous as the season advances. Very full, and of fine form; four feet.

Roland, (Bush.) White, heavily tipped with crimson purple, resembling Lizzie, but nearly twice the size, fine and constant; four feet.

Royal Scarlet. (Keynes.) A superb colour, fine form; three feet and a half.

Touchstone, (Fellowes.) Light rosy purple, a broad-petalled Mr. Seldon, early bloomer, and fine; three to four feet.

Duchess of Beaufort, (Bush.) Blush white, tipped and edged with dark purple, a full constant flower. One of the finest varieties for exhibition; four feet.

Mrs. Edwards, (Summers.) Peach lilac, a full, neat, well-formed flower, very delicate in colour; three to four feet.

Delta, (Turner.) Yellow, of fine substance and form; three feet.

Saturn, (Turner.) Clear bright yellow, edged and tipped with red, fine form and a striking flower, but a little uncertain; three feet.

Mont Blanc, (Fellows.) Pure white, never changing in the hottest weather; fine petal and outline; four to five feet.

Cardinal, (Skynner.) Very bright scarlet, good form, a useful flower; three feet.

Fenella, (Holmes.) White, deeply veined and tipped with purple, an excellent early variety; three feet.

THIRTY FIRST-CLASS OLD VARIETIES.

Annie Salter, (Salter.) Delicate peach; four feet.

Beauty of the Grove, (Burgess.) Buff, tipped with carmine; three feet. Beauty of Slough, (Bragg.) White, heavily mottled and tipped with crimson purple; five feet.

Bob, (Drummond.) Bright scarlet; four feet.

chess of Wellington, (Turner.) Soft pale cream-colour. It is very full and double, having a number of well-formed and well-arranged petals, with high centre, fine; two to three feet.

chess of Cambridge, (Barnes.) White, heavily edged with crimson, howy; four feet.

ke of Wellington, (Drummond.) Orange; four feet.

ipse, (Wheeler.) Very dark purple; a very useful fine-shaped flower, rith high centre and good general form; three to four feet.

any Keynes, (Keynes.) Buff, tipped with crimson purple; large.

and Sultan, (Turner.) Dark maroon, opens nearly black. It is occasionly shaded with crimson, which gives it a rich appearance; of excellent prm. A desirable variety for exhibition; four feet.

omparable, (Ablitt.) Crimson red, fine petal and outline; three feet. d Palmerston, (G. Holmes.) Deep crimson scarlet, a large fine-shaped

ower; constant and general good properties. It is large enough for the ack tier, and has a close compact centre; four to five feet.

lipop, (G. Holmes.) Salmon buff, shape good, being nearly two-thirds f a ball, having a very high centre, with fine rounded shoulder. The uter petals reflex. It should be grown vigorously, but being above the verage size, should be allowed to carry a considerable number of clooms; five feet.

ly Franklin, (Rawlings.) Shaded salmon, good form and centre; four feet. dy Mary Labouchere, (Turner.) White, tipped with lavender, fine early; wo feet.

rd Bath, (Wheeler.) Crimson, a noble variety; three feet.

rd Cork, (Wheeler.) Crimson purple, fine close centre, and very constant; hree to four feet.

rd Raglan, (Dodds.) Buff; three feet.

ss Burdett Coutts, (Turner.) New colour, fawn, with a smooth wellformed petal, without the least rib or indentation, constant, and of fine nabit; four feet.

s. Wheeler, (Wheeler.) Rich deep scarlet, fine smooth petal; four to live feet.

indora, (Fauvel.) Shaded claret, with small bronze tip, large bold show flower, very constant: three to four feet.

rfection, (Keynes.) Bright orange, of good shape, medium size, figured in the "Florist" for January, 1856; three feet.

e-eminent, (Fellowes.) A full-sized flower, rich deep purple, of great depth and substance; three feet.

incess Radziwill, (Gaines.) White, tipped with purple; three feet.

ieen of Whites, (Bush.) White; two feet,

bert Bruce, (Bush.) Orange, full and constant; three feet.

by al Scarlet, (Keynes.) Crimson scarlet, deep and full, good petal and shape; three to four feet.

Royal White, (Lawton.) Pure white, with a stout smooth petal and good form; three to four feet.

The Nigger, (Fellowes.) Very dark maroon; three feet.

Tyrian Prince, (Turner.) Shaded plum-colour; two to three feet.

Yellow Beauty, (Turner.) Bright yellow, good form, very constant, graceful free-blooming habit. The hottest weather does not in the least change its colour; four feet.

TWELVE VERY CHOICE FANCY DAHLIAS.

Cleopatra, (Salter.) Orange yellow, distinctly striped with crimson scarlet, a bright new variety, very dissimilar to any existing kind, the petal and general form being equal to the selfs. It is very constant, both in its marking and in producing good double flowers; four feet. (New.)

Alliance, (Perry.) A dark striped variety, with lilac ground, heavily spotted and striped with dark maroon; four to five feet. (New.)

Admiration, (Green.) White and scarlet, very constant and attractive; three to four feet.

Baron Alderson, (Perry.) Bright orange, with a white tip on each petal; large and attractive; two to three feet.

Butterfly, (Salter.) Yellow, striped and spotted with red, good; two feel. Carnation, (Keynes.) White, striped with purple, a new variety in colour, and of good petal and form; three to four feet.

Fancy King, (Legge.) Orange buff, tipped with white, good form; three to four feet.

Inimitable. (Salter.) A fine-shaped striped variety, bright orange salmon, striped and spotted with deep crimson; three feet.

Imperatrice Eugenie, (Miquet.) Pure white, edged with purple; three feet. Jenny Lind, (Girling.) Maroon, tipped with white; two feet.

Lady Paxton, (Dodds.) Dull red, tipped with white, fine petal and form; four feet.

Tattycoram, (Slipper.) Dark maroon, tipped with white; four feet.

SEVEN DWARF BEDDING DAHLIAS.

Captain Ingram. Dark crimson, free-flowering, should not be disbudded; two feet.

Crystal Palace Scarlet. Free-blooming, flowers small and brilliant.

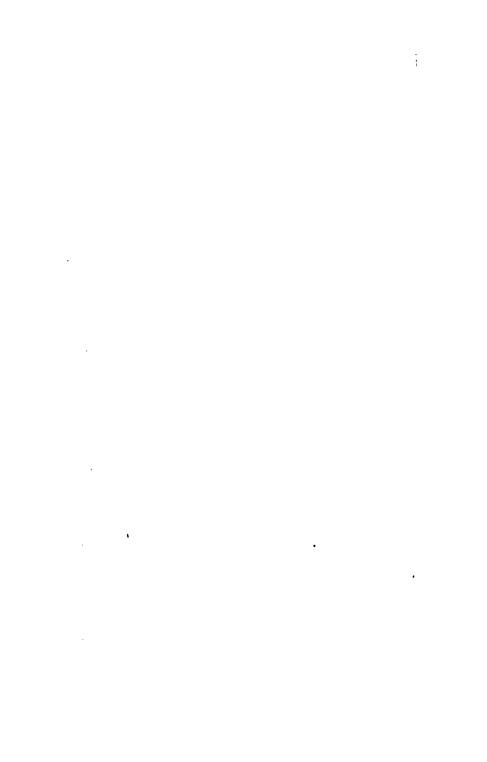
Prince Arthur. Crimson, fine erect habit, large flowers; eighteen inches. Queen of Whites. Pure white, free bloomer; two feet and a half.

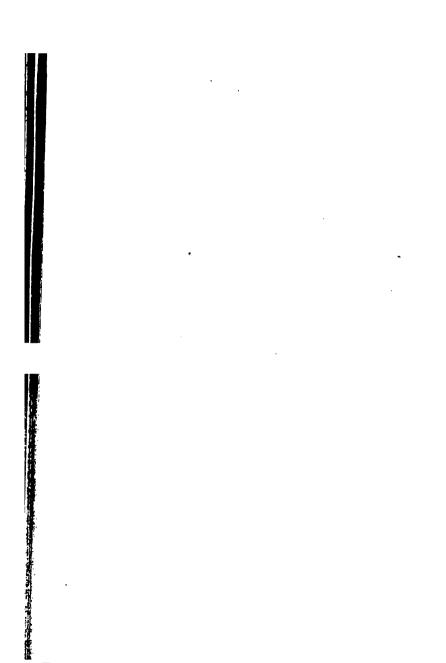
Titian. Bright yellow, flowers loose, but showy; two feet and a half. Purple Zelinda. Purple, good habit; two feet.

White Zelinda. Lately raised by Mr. Fleming; will, no doubt, prove of great value.



Alinea Salter.





GARDEN FAVOURITES.

THE

HRYSANTHEMUM:

IT8

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

BY SHIRLEY HIBBERD,

Author of "Rustic Adornments for Homes of Taste," etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON: ROOMBRIDGE AND SONS, PATERNOSTER ROW.

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THE CHRYSANTHEMUM.

CHAPTER I.

"There is a beautiful spirit breathing now
In mellow richness on the clustered trees,
And, from a beaker full of richest dyes,
Pouring new glories on the autumn woods,
And dipping in warm light the pillared clouds.
Morn, on the mountain, like a summer bird,
Lifts up her purple wing; and in the vales
The gentle wind—a sweet and passionate wooer—
Kisses the blushing leaf, and stirs up life
Within the solemn woods of ash deep-crimsoned,
And silve beech, and maple yellow-leaved,—
When Autumn, like a faint old man, sits down
By the wayside a-weary.

Longfellow.

AUTUMN MUSINGS.

THE Chrysanthemum is an emblem of both sadness and gladness. It represents the decay and death of Nature, when the floral glories of the year sink into a common grave, and perish together. It is the last of its proud race of beauties, and as the "day dies like the dolphin," so the year arrays itself in all its most gorgeous hues to meet its death-doom. The last flowers are the most dazzling of all, and take a tone of grandeur befitting the ruddy sacrifice that every copse, wood, and hill-side celebrates in the fiery splendours of a thousand sunsets. As the summer comes to its last hours, the bedding plants make their final effort, and the ground is all a-blaze with scarlet, orange, and white, so that a burning prairie is nothing to it; except for the terror it might inspire. Then come the hollyhocks, like cressets set to

adorn the funeral path; then dahlias, and last of all Chrysanthemums, that surpass all the rest in splendour, and that light the leafy mausoleum of the gay seasons, when every flowery mourner has departed, and the last hush of autumn quietude has set in to hallow the repose of nature.

If spring gives us the tender bursting leaf, and the gushing song of the bird, that call a tear to the eye for the glad restoration: if summer gives us the fullness of life, pulsing and beating in its hey-day of power, autumn concentrates their glories in one grand display of funeral banners and sacrificial fires, that light the way to the common grave of rural beauty. With all its glory of brown wheat-sheaves, burning woods, and the picturesque forms that move over the landscape in the glad work of gathering in the autumn store, there is in all things a tone of melancholy that strangely adds to the enjoyment of contemplation, though it springs from the consciousness that soon the curtain will fall upon the scene, and every feature of the panorama will be darkened. The very mists that make the mornings sublime seem like the ghosts of summer friends that have already perished; the purple of the slanting evening sunbeams is but the foretoken of Death on his march; the loaded wain, and the everlasting quiet that permits the hum of human life to be heard in the remotest solitude. strangely combine to oppress the heart even when its raptures are at the highest.

Just as the gardens make one grand effort at the close, so the hedgerows and waysides acquire an intenser lustre, though the first frost is at hand, which is to cut all things down. The forest walks, where the hungry sand will scarcely produce a tuft of green all the summer long, now shine with the gold of millions of ragworts; the brookside has its myriad spikes of lythrum and willowherb arrayed in fulgid hues; the copse and the glen show their brakes already touched with brown; here and there the dash of crimson and orange goes over the elms and maples, as if a burning hand had passed and swept away the verdure with its touch; and while the last rose sobs heavily upon its stem, the storm drops down, the breath of winter is felt and heard from the north, and one night of frost brings down the dark curtain over the face of nature. Then comes the sleep and rest, from which all

ngs will awaken at the call of spring, so typical of man's descent the grave, whence, at the sound of the last trumpet, he shall again to a glorious immortality. "It is sown in corruption; s raised in incorruption; it is sown in dishonour; it is raised glory; it is sown in weakness; it is raised in power; it is sown atural body; it is raised a spiritual body. And as we have ne the image of the earthly, we shall also bear the image of heavenly." May faith in God and hope in heaven be the n of every lover of flowers, to whom especially the Saviour's on of a lily will be acceptable as the highest teaching drawn n humblest things.

"Father,
My heart is awed within me, when I think
Of the great miracle that still goes on
In silence round me—the perpetual work
Of Thy creation, finished, yet renewed
For ever. Written on Thy works I read
The lessons of Thine own eternity.
Lo! all grow old and die; but see again,
How on the faltering footsteps of decay
Youth presses—ever gay and beautiful youth,
In all its beautiful forms.

Oh there's not lost One of earth's charms; upon her bosom yet, After the flight of untold centuries, The freshness of her far beginning lies, And yet shall live."

BRYANT.

CHAPTER II.

CHRYSANTHEMUM JOTTINGS.

We are all of us rather too apt to give way to enthusiasm, and the first consequence of that is that we must exaggerate. Here I have been extolling flower after flower, and, I assure you, very sincerely, because I do love them from my heart, and now that I come to the Chrysanthemum I feel a desire to elevate it above all others, or at least to give it a place only second to the rose. There are not many who will care to go that length with me, nevertheless I feel that this is a flower possessing merits that need no peculiar individual tastes to appreciate, no special and eccentric "fancy" to discern them, because they are potent and proveable, and hence entitled to universal admiration. What flower can we choose with which to produce such magnificent effects with so little trouble? It comes at a season when the merest weed in bloom is welcome, and it gives us an exhibition that almost surpasses the whole array of summer flowers. It will prosper and make a gay show in the poorest soil, and with no attention at all, and it can be improved to almost any extent by the patient adoption of such expedients as the florist uses in order to gain a desired end; even then there is no high-class subject that admits of such simple and easy treatment. It does well as a border flower, as a window ornament, and is grand in either greenhouse or conservatory, while at exhibitions it surpasses all things, not even the rose excepted, as witness the Chrysanthemum fêtes of Stoke Newington, Ipswich, and Colchester, where any one who doubts my judgment as to its high excellence will surely be made a convert. Then it is so hardy, so strong in growth, so abundant in bloom, so ready to sport and change, and, lastly but not leastly, it braves town smoke unhurt, and may be made as surely successful under the shadow of St. Paul's as amid the purest mountain breezes. There has been a good deal said about the Temple Gardens, and the triumph of floriculture under adverse circumstances, but from many

an inspection which has ended in disappointment, I, for one, cannot agree that those grounds have ever yet attained to the condition of excellence which I believe to be possible, except in Chrysanthemums, and the collections of these by Mr. Broome and Mr. Dale are undoubtedly worthy of the enthusiasm of Londoners, and a liberal reward to the patient gardeners who so ably cultivate them. This, indeed, is especially a London flower; it is best shown in or near the metropolis; the farther we go from London the more we find the culture of it less and less understood.

It is nearly two hundred years since the first description of the Chrysanthemum as an European flower appeared, and the author of that first description was Breynius, who, in the second part of his "Prodromus Plantarum Rariorum," published in 1689, described it as the "Matricaria Japonica maxima, with most elegant double, rosy, or light red flower." He enumerated five varieties, namely, the white, purple, dull yellow, flesh-coloured, and crimson. Breynius and Plunkett both describe its Japanese name to have been Kychonophane; and as a proof that by this name the Chrysanthemum was meant, we have Thunberg's evidence in his "Flora Japonica," that the Japanese name of the Chrysanthemum is Kiko no fanna. As in the case of many other noted flowers, the Chrysanthemum was lost soon after its introduction to Europe. and it was not till 1789 that it was re-introduced, and in that year a plant of the purple variety was brought to France from China, and described by M. Ramatuelle in the "Journal Histoire Naturelle;" so that its culture has been practised but little more than half a century. In 1790, M. Cels sent a few plants to Kew, but a nurseryman, Mr. Colvill, of King's Road, was the fortunate man to bloom it first, and his specimen was figured in the "Botanical Magazine," t. 327. This purple flower was a variety of C. sinense, and the parent of the many splendid sorts we now possess. With the Chinese this has long been a great favourite, and Mr. Fortune says it is "the Chinese gardener's favourite still." In its production they lavish every care, and the number of varieties they possess is very considerable.

The Chrysanthemum is a compound flower, and in the Natural System it is classed with the asters, and has many English representatives, a few of which find favour with gardeners. In its construction it very closely resembles the daisy, and its allies of the field and hedge-row are the great oxeye daisy, the pretty yellow flower common in corn-fields called *Chrysanthemum segetum*, or wild marigold, the feverfew, the wild chamomile, the common ragwort, the groundsel, and many others more or less known. In the garden its kindred are the asters and others, that were enumerated and referred to in the botanical chapter on the dahlia. In the Linnean System the Chrysanthemum is classed in *Syngensia superflua*, and is hence closely related to the dahlia as to the construction of its organs of fructification.

CHAPTER III.

CAPABILITIES, VARIETIES, AND PROPERTIES.

THE Chrysanthemum, as already remarked, offers a splendid field for the ambitious florist, for in either cut blooms or plants it is one of the grandest in its effects at exhibitions, and its culture is for many reasons eminently suited for amateurs. It requires but few of those appliances which make amateur gardening an expensive hobby, and one that needs vigilant daily attention. You may do without pits, hot-beds, propagating houses, and even greenhouses and conservatories, and still attain to a high excellence, and even beat the nurserymen, who are generally supposed to carry all before them; indeed, there are few nurseries that can show either such specimens or such high-class varieties as those amateurs who have taken up the flower in earnest. Look at what has been done in Stoke Newington alone, where the first Chrysanthemum society was established in 1846. There we see in the middle of November every year such a constellation of floral beauties as almost persuades us that our climate must have changed into one prolonged summer. Blooms six inches across are common, and specimen plants loaded with hundreds of such, most symmetrically disposed, are to be seen measuring twenty feet in circumference and six feet in height, leafed to the bottom, and perfect prodigies of health and vigour. Enthusiasts from all parts shake hands and jostle there, and though the society has long outgrown the existing means for its accommodation, visitors and plants having but a fourth of the space they severally need, its fame still increases, from the accession of increasing funds, members, and contributions, and, taken all in all, and making fair allowance for its special character and local constitution, there is not a more successful society in the world, nor one that can equal its display at that particular season of the year.

Away from London, Mr. H. Bowler, of Ipswich, may be said to have made the greatest progress in the culture of the Chrysanthemum. His Vesta, exhibited last year at Ipswich, measured not less than twenty-seven feet in circumference, and was furnished with a thousand blooms of the most snowy whiteness, every single bloom being in itself a specimen. The foliage was fine and healthy, feathering the stems to their base, and the plant was exhibited in a sixteen-inch pot. Madame Camberson, also exhibited by Mr. Bowler, was almost equal to his Vesta, and some of his Pompones were twenty feet in circumference, and beautifully bloomed and proportioned. In Pompones, however, Mr. Weatherill takes the lead; and it would astonish those who know Chrysanthemums as seen at nurseries only to see to what grand perfection this noted exhibitor brings them, and without a single trick beyond honest At the North London and Stoke Newington, Mr. James and Mr. Oubridge take the lead as exhibitors, and for supply of new varieties and high-class stock, Mr. Salter, of the Versailles Nursery, Hammersmith, is the man.

There are three distinct families of Chrysanthemums, the Large-flowering, the Pompones, which are small as compared with the old stock, and Lilliputians, which are smaller still, being about half the size of Pompones proper. The large-flowering was the sort first introduced, and the first that became famous; indeed it is only of late years that Pompones have attracted much attention, though this small kind was figured so early as 1699 in the forty-fourth plate of the tenth volume of Rheede's "Hortus Malabaricus." It was known as the Tsjetti Pu, but afterwards took many botanical designations, and was described as a Matricaria in the third volume

of Ray's "Historia Plantarum." Mr. Fortune first introduced the Pompone variety from Chusan, and it was for a time known as the Chusan Daisy.

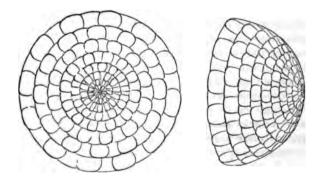
Mr. Salter's list of Chrysanthemums of all kinds amounts to more than seven hundred sorts; and, besides the division into three families which we have just noted, they may also be divided as to the form of the flower into incurved and those that are not incurved, and among the latter those known as Anemone-flowered have become very fashionable of late. The Anemone kinds are of late introduction, and the fashion requires them to have but one row of guard petals round the anemone-like centre, and if the guard is of a different colour to the centre, the flower is the more prized, though if the colour is the same it is not considered imperfect. One advantage of the anemone-flowered kind is that they are more hardy than the full flowers, and as to their beauty, no one can fail to admire well-bloomed specimens of Marguèrite de Valois, with its splendid yellow centre and white guard; Fleur de Marie, a fine white; Gluck, a splendid orange; Diamant de Versailles, white guard and rosy centre; Regulus, cinnamon; and Marquèrite, with bright rose guard and pale rose centre. As to the guilled and tasselled varieties, there is no doubt these are all in the first stage of transition from the orthodox form to the wild state, but they are generally free bloomers, very hardy, and make a splendid show as border-flowers, though they find little favour at exhibitions, because they do not conform to the recognized standard of "properties;" and if properties were not insisted on, the criterions of excellence would soon be confused, endless and profitless discussions would arise as to comparative merits, and the flowers themselves would deteriorate; hence. even if our standards of judgment are capable of revision and improvement, the necessity for a standard is self-evident, and every amateur, even if not an exhibitor, should study properties in the selection and improvement of his own private stock, and make no scruple to sacrifice plants that, judged by the exhibition ordeal, would be pronounced worthless.

The properties generally agreed to in judging the Chrysanthemum are as follows:—

The plant must be dwarf and of a fine globular or pyramidal

shape, shrubby, covered with bright green healthy foliage to the bottom of the stems; the flowers abundant, symmetrically arranged, boldly displayed, and well supported by the stems. The stems ought not to be more than eighteen inches high.

The flower should be circular in the outline of the guard petals, and from the crown to the circumference form two-thirds of a ball. It should be very double, high in the crown, and without disk or confusion in the centre; the petals should be thick, smooth, broad, circular at the ends, and the point where they meet hardly perceptible. They ought to *incurve* gracefully and regularly; if they quill so as to show their under sides, they are considered defective. The flowers should be large in proportion to the foliage, but the size is considered only in relation to the plants, though,



if well formed, numerous, and symmetrically disposed; the larger they are the better.

The colour is not subject to severe rules, but it must be pure and bright. If a self, the more distinct and striking the more is it prized; if more than one colour, they should be well defined, with no irregular stains or blotches; the Chrysanthemum being very apt to come cloudy and confused in tints, renders this point one of great importance.

CHAPTER IV.

GENERAL CULTURE AND SEASONAL MANAGEMENT.

The Chrysanthemum is very hardy, will grow in any soil, it makes a good ball, and may be moved safely at any season, and from the 1st. of January to the 1st. of October, any part, from young tops an inch long to a full-grown and ripened branch, may be struck and rooted in a brief space of time. Hence the mere preservation of the plant is an easy matter, as also is its increase; but to do it justice, it needs some special care, and the best kinds degenerate unless cultivated, with a view to sustain or even improve their excellence. The plant is a gross feeder, and to insure abundance of fine blooms, it should be grown in a rich soil, and be abundantly supplied with water.

The best Chrysanthemum soil is one formed of one part wellrotted dung, one part decayed leaves, and two parts loam, and in making up the compost, an addition of a little sand and some small potsherds should be added for those that are grown in pots. For a border to be planted with them, it may be sufficient to enrich it with a liberal admixture of decayed dung only some short time before planting, and if the soil of the border is a good friable loam, one annual dressing of manure will be sufficient. On a wet soil some provision must be made to secure good drainage. for, though the plant loves moisture and good living, it is much deteriorated by stagnant wet about the roots. Where the grower purposes to plant the best sorts with a view to early and fine bloom, it is advisable to have the border drained and trenched during the winter, the top spit being kept at top and laid up for the frost to mellow it: then about February let the ridges be levelled, and a liberal coating of manure dug in.

The last week in March, or the first week in April, is the best time for planting. Place them two feet apart at least, and if the plants are from cuttings made in February, or offsets from old stools, three may be planted in a patch. The tallest sorts need to be three feet apart, and, if the back row is to be grown against a wall or trellis, trim the shoots as they grow in the form of a fan, and allow six inches between the points of the shoots, carefully removing every shoot which interferes with such an arrangement. As they make their summer progress, cut clean away every shoot from the roots upwards to within six inches of the tops of the main shoots, and so preserve the plants open, moderately spare, and they will keep well leafed to the bottom. If the side shoots are allowed to grow at random, the symmetry of the plants will be spoiled, and the blooms will be poor and crowded.

In the open border the plants must be staked in time to prevent damage by wind, but this should be done with some attention, and not, as we too often see them, gathered anyhow into a stiff bunch, and tied tight to a pole, but loosely and with a little arrangement, to produce a graceful and open bush. All through the summer they will require constant watering. They do not root deeply, and suffer much if exposed to drought, and there is no plant which is more benefitted by an occasional syringing or drenching of the foliage. From the moment of planting to the time they swell their buds for bloom, they should never flag, and for a few weeks before the blooms open an occasional—say weekly—dose of weak manure-water will be very beneficial. After every watering with liquid manure one good watering should be given with soft clear water overhead, and to soak the roots well.

Though very hardy, it is not wise to leave good sorts exposed all the winter, except in very favoured localities. The best way of treating the general stock in winter is to take up all the old roots, clear off the stems, and lay them by the heels close together in some spot where it will be convenient to shelter them with a mat and some litter, for a long and severe frost might destroy many, if fully exposed to its influence.

In the culture of specimen plants in pots, "stopping" is much resorted to, and is one great secret of success. But it is inadvisable to stop plants in the open borders, because by retarding the blooms many may be cut off by early frosts, and the stopping causes a quantity of breast wood to form, which in the open ground is not required. Where bushy plants are wanted, they may be laid down and pegged, and this is applicable also to the dwarfing of sorts that are too tall for the position in which you may wish

to place them. Let us now treat of the high culture necessary to the production of specimen plants, and of the routine treatment of the Chrysanthemum as a florists' flower.

CHAPTER V.

PROPAGATION AND SPRING CULTURE.

When we shall learn to seed Chrysanthemums with as much ease as we do most other florists' flowers, we shall make as much progress in one year as we have done during the past ten in its culture and improvement, for it would be absurd to suppose that we have attained to perfection yet. As it is, our climate hardly permits a seed to ripen, and we have to depend on continental supplies, which renders the raising of new varieties additionally precarious, and but too often "Love's labours lost." When early-flowering sorts can be got to ripen seed, we know better what we are about, and, if saved from well-shaped and well-coloured flowers, there is hope of a progeny that may repay us.

The seed should be sown in February in wide shallow pots or pans in very fine soil, and lightly covered, and must be started in a gentle moist heat. If the pans are well moistened and covered with flat panes of glass till the seeds appear, there will be no need of further watering until the plants have two or three leaves, and then they must be kept moist with very gentle showers from the finest-rosed watering-pot you have. Let them have air pretty freely, to prevent damping, prick them out as soon as they have three or four leaves each, and as soon as they meet again give each a separate thumb-pot, and grow them on in an average temperature of 60°. As fast as they fill the pots with roots, give them a shift, but do not stop any, or aim at making specimen plants the first year, simply grow them well, but let them take what shape they like till they flower, and then determine what shall be done with them. Some of the forwardest may flower

the first year, and those that do not will flower early in the second, and may prove the best. When they have made one season's fair growth, they may be treated in every respect the same as old plants. Every inferior sort should be got rid of at once, for it is useless to preserve things that are not equal to what we already possess.

Propagation by means of cuttings is a very simple affair, for the Chrysanthemum roots freely, and is one of those things of which we may make sure of increasing the stock from the merest fragment to start with. Cuttings well made and properly put in will root at any time, even when full of flower, if encouraged with a close moist air and gentle heat, but to obtain good plants the earlier they are struck the better. Old stools that have been carefully treated begin to break very early in the year, and by the first week in February any moderate number of cuttings may be taken from them; young shoots of three inches long are the best. Trim off the lower leaves with a pair of scissors, cut each clean across to the lowest joint, and dibble them in tenderly round the sides of five-inch pots, in a mixture of powdery peat and sand. and with a coating of fine sand on the surface; cover with a bell-glass, and place on sand or coal ashes, with a gentle bottomheat, and they root speedily, and may be potted off into thumbpots. stopped at the third joint, submitted again to gentle heat, and, as soon as they fill the pots with roots, shifted into sixties. and stopped again, still kept moist and warm, and in a similar soil of peat or old turf-mould finely broken, and mixed with silver-sand sufficiently to keep it open. Give air moderately, never allow them to be pot-bound, syringe the foliage occasionally, and as soon as they fill the pots with roots again the season will be forward enough for another potting, and a transfer of the stock to a cold pit or frame, or the shelves of a cool greenhouse.

At this stage they must have liberal culture, and be made as hardy as possible. Give them another shift, and a more nutritious soil, namely, two parts light hazelly loam that has been exposed to frost, or old rotted turves from a loamy pasture, well rotted and pulverized, two parts decayed dung from a cucumber or melon pit, one part peat, and a little sharp river-sand and some very small potsherds to keep the whole open. Mr. Fortune's note on

the Chinese mode of cultivation may afford the amateur a hint of the sort of stuff in which Chrysanthemums delight. He says, "The soil used in potting is of a very rich description. About Canton it is generally obtained, in the first instance, from the bottoms of lakes and ponds where the nelumbium or water-lily grows. It is then laid up to dry and pulverize for some months, when it is mixed with old night-soil taken from the manure tanks found in every garden. A heap of this kind, after being laid up for some time, and frequently turned over, is in a fit state for potting the Chrysanthemum. Manure water, taken also from the tanks already noticed, is liberally supplied during the growing season, and its effects are visible in the luxuriant dark green leaves which cover the plants." When our Sewer Boards and Drainage Commissioners learn wisdom, and make town manure pay for town drainage, we may be able to obtain the best of manures for all floricultural and agricultural purposes, and apply the Chinese mode to many more things than Chrysanthemums.

Frost and damp are more inimical to young plants in pots, and especially those that have tasted artificial heat, than to the stools in the open ground, and hence every care must be taken that such enemies do not annov them. At each potting, and as fast as they spread and branch, continue to stop them by nipping out the points of the shoots above the third joint, till the middle of July. This will cause them to grow into huge bushy plants, and to keep the foliage green to the bottom, which is so essential to their beauty. They must have plenty of room at all times; if crowded, the lower leaves fade, and the base of the plant becomes a bare and unsightly mass of sticks. They should not be grown on in pots after May, but planted out in rich soil, and taken up again in September for blooming; but if an entire course of pot-culture be preferred, put them into their blooming pots in the middle of June, and then cease stopping for all kinds that are required to bloom early. The last shift should be a large one, proportioned, of course, to the size of the plants, but in any case with plenty of room for increase of root, and with the soil which we have just described.

CHAPTER VI.

"In other things we count it to excel

If it a docile scholar can appear

To Nature, and but imitate her well;

It overrules, and is her master here.

Who would not joy to see his conquering hand
O'er all the vegetable world command?"

Cowley.

SUMMER CULTURE, STOPPING, AND BLOOMING.

PLANTS intended to be grown on in pots for exhibition should have a large shift early in April, say to pots three sizes larger than those they are in, and every shoot must be carefully stopped, to cause the side joints to break and form round bushy masses. Plants from spring cuttings should be put into nine-inch pots, and old stools into twelve-inch at least, except for Pompones, for which the pots should be proportionally smaller. Besides the regular stopping, which causes the plants to assume such a noble appearance, the centre must be kept open by tying out the shoots in a symmetrical manner, when the inner joints will soon fill up the centre, and give them a fine outline.

During the whole of the summer the plants should never flag for want of moisture; they should be freely exposed, whether in pots or turned out in the open ground; let them have water overhead frequently, and as soon as the flower-buds appear give them weak liquid manure once a week. Pot plants should be placed on coal ashes or coarse gravel; the pots should be well drained, and the plants secured against stagnant moisture at the roots. As soon as the flower-buds appear, increase the strength of the liquid-manure, but be careful not to overdo it, or the foliage will get diseased, and the blooms will be ruined. Thin the buds regularly off those intended for exhibition, and during hot and dry weather water them over-head night and morning; and in order that the sun may not reach them before the foliage is a little dried from the morning watering, give them a position a

little sheltered from the east, and water as early as possible after daybreak.

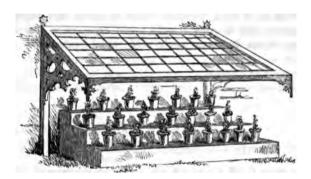
They must always have plenty of room, or the lower leaves will turn brown and fall off, which is much against them as to their intrinsic beauty and the estimation of judges at shows. You will note how successful exhibitors show their plants leafed to the base, and full of health and verdure, no matter what their size.

In the potting for bloom of those which were planted out in May, a little preparatory process must take place, so as to insure the taking up of the plants without breaking the balls, for that would give them a check that might prevent them from blooming, or cause it to be delayed beyond the proper time. We have already said that the middle of June is the ordinary time at which to cease stopping, but to secure a succession to last from the end of September till February, it is as well to stop some plants as late as the middle, or even the last week in July; but those stopped so late must be encouraged in their growth in other respects, and submitted to no checks in removal.

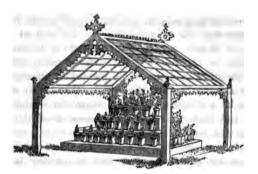
A few days before lifting them, give the ground a good soaking, and the day before taking them up loosen the ground all round them with a four or five-tined fork, and have everything in readiness. that when removed they may be carefully placed in their bloomingpots at one lift from the border. Lift them with good balls, and do not injure a single fibre if you can help it. Drench them over-head as soon as they are potted, or if rain follow, let them enjoy it freely, and they will not lose a day in the date of their subsequent blossoming. If hot sun prevails, give them a shady aspect, or put them under an awning, and after the first drenching do not water them at the roots again till they get moderately dry, but frequently syringe the foliage, and keep the ground about them moist, and as soon as they show signs of having commenced a vigorous root-action in the pots, expose them freely, that the bloom-buds may set well, and the wood be ripened sufficiently to bear them. Any kind of coddling or unnecessary in-door growth is ruin to the Chrysanthemum.

For exhibition purposes, except in the case of cut blooms, the plants must be flowered in pots. But the prime way of

making a grand Chrysanthemum show at home, is never to let them see a pot, much less get inside one. Mr. Salter blooms his best specimens of old and new plants in borders, in a house expressly adapted for them, and in which they have as much air as.



if they were left out, but are secure against frost and damp, and excessive sunlight. As they begin to show for bloom they are taken up and planted in this house, kept very moist at the roots



as long as they are in bloom, and allowed abundance of air night and day, with shade as may be required. Since Chrysanthemums are important subjects everywhere, such a mode of blooming them might be adopted in preference to the removal of them to the

greenhouse, which is the cause of many things being thrust aside and huddled up to their injury, and from which many never recover. A lean-to or span-light, covered pro tem with tiffany, with an ample stage open to the four winds of heaven, but with moveable timber structures to close in the north and east sides, or all four sides when desirable, would be cheap and useful for this purpose, and at other seasons would serve as a cool house for many things that occasionally need partial protection.

CHAPTER VII.

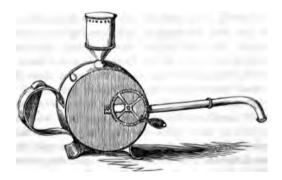
WINTER MANAGEMENT, DISEASES, AND PESTS.

As soon as the flowers have withered, the blooming shoots are to be cut down, but not to the injury of any suckers that may be rising. If in the open ground cover with litter, or take up the roots and pack them away as directed in Chapter IV. Pot plants should be wintered in a cool pit, and kept only just moist enough to preserve life in the plants. During severe frosts a mat may be thrown over the light, but they are so nearly hardy that moderate protection will be sufficient. At the end of February or beginning of March, according to the state of the weather, the old stools may be trimmed up, the suckers taken off to form additions to the stock, and the whole planted as already directed.

Old plants are the best for the borders, they bloom strong and early, and make a glorious show to honour the season of home hospitalities, and deck the mournful procession of the old year on its way to the land of forgetfulness.

It is seldom that any disease affects the Chrysanthemum, but still we know by experience that such a casualty is possible. Last year (1856) Mr. Broome's show at the Temple Gardens, was sadly marred by the breaking out of a distemper which cut down foliage and flower alike, in a manner very similar to the potatoe disease. Among my own stock many that were in the open ground all but disappeared from the face of the earth, but there seemed

to be no rule observable as to soil or varieties, by which one could judge as to the cause. Some that had been carefully grown suffered as much as others that had had very scanty attentions, and vice versà, but not a single pot specimen in my own collection, or in the collection of friends which I had opportunities of inspecting, suffered in the least; and if violence done to them by the grower was the cause, I might have expected plants that were in a room heated to 70° and upwards, to have suffered, yet even these were unscathed, and only took a paler hue, as they will always when bloomed in a heated air. A mysterious "something," therefore, of an atmospheric nature, was no doubt the cause, but



since it is impossible to say what, it would be idle even to suggest a remedy. When exposed to damp before they are housed, the foliage will sometimes get mildewed, and then a dusting with sulphur is the best course that can be recommended.

During dry summer weather green fly will occasionally attack the tops of the plants, and the usual remedy—tobacco—must be resorted to. Plants out of doors may have their tops dipped into tobacco-water, and in the greenhouse a hearty smoking by means of Brown's fumigator. In either case the plants should be well syringed when the tobacco has done its work.

CHAPTER VIII.

SPECIMEN PLANTS. POMPONES.

A FEW additional hints on the production of specimens for cut blooms, and on the decorative uses of Pompones, may here be useful. To produce grand specimen flowers without reference to the general contour of the plants, strike cuttings in autumn without heat, of the sorts intended to be grown. Winter them in a cold frame; give as much air as possible all winter, and early in April plant them out eight inches apart, under a wall to which they are to be trained, in a well-drained and well-manured border. They must not once be stopped, but encouraged to throw their whole strength into the original flower germs; the process of stopping tending of course to the formation of new buds, to the diffusion of the strength of the plant. Never let them flag, and give very weak manure-water regularly after the second week in May, and increase its strength at the beginning of August.

Remove all laterals as fast as they appear, and when the head breaks into two or three forks, leave as many as you think proportioned to the strength of the plant, and, as a rule, the fewer the better. Keep the tops frequently syringed, keep down green fly, and allow nothing to shade or choke them. As soon as the flower-buds have plumped up well, weaken the manure-water, and discontinue it altogether before the flowers open, but continue the use of the syringe, and keep the roots moist with soft water.

When you see fairly what is the produce in flower-buds, remove all but the centre one from each of the leading forks, unless that has any defect, in which case cut it clean away, and leave another in its place. Before the flowers fairly open, make provision to shade them from the sun; drive in a couple of stout poles before each plant, at about four feet distance from the wall, from these carry horizontal bars across to the wall, and firmly fix them at a sufficient height above the crown of the plants to allow them a free circulation of air. Over this frame-work stretch canvass or tiffany, or a mat will do, to secure shade and shelter from heavy

rain, the latter being sometimes as great an enemy to the Chrysanthemum as any it has to contend with at the time of flowering. One night of deluging rain will sometimes break the flowers to pieces, make the whites muddy, and waste the colour of the brightest tinted blooms, unless they are in some way protected from its influence. In the case of early frosts, an extra mat brought over so as to hang down in front, will be an additional protection, but care must be taken that such extra coverings are removed betimes in the morning, so that the blooms have a full share of daylight. A table and inverted pot, as described at page 200, is a most useful form of shade for specimen Chrysanthemums.

In the culture of Pompones, which are among the choicest of domestic flowers, as well as most worthy objects of floricultural ambition, the same routine is necessary, but from their smaller size these are so well suited for pot-culture, that they are largely and deservedly used to provide a succession for the greenhouse and the window from October to February. To produce fine plants it is best to take off suckers in March, pot them into rich compost in forty-eights, unless they are scanty of roots, in which case pot them in sixties, with a little additional sand and a few small crocks, and after a while shift them and treat as the others. It is by judicious stopping that round bushy specimens are obtained, and these are so noble compared with the long-legged things one sees but too often in amateur collections, that we are sure no one who was once informed of the mode of effecting such a change would ever after neglect it.

When the plants are strong in pots turn them out carefully, without breaking the ball, and let them remain in the open border till the second week in June, when they must be carefully lifted and put into their blooming-pots, and again stopped and pegged out into as large a circumference as possible. The new shoots from the stopped joints will fill up the centre, and they will set for bloom all over, from the crown to within a few inches of the pot. Any that are leggy or thin may be again topped and spread out in August, and then the whole must be watered once a week with liquid manure, to be discontinued as soon as the flower-buds begin to show colour. Though they need protection against frost, they should be bloomed in an airy cool place; artificial heat is

bad for them, and causes the colours of all to become much paler than they should be.

Pompones may be struck from young tops as late as June, and flower the same year; and if shoots are pegged down in August, they may be removed and potted with good roots, when the flower-buds appear, and make pretty dwarf specimens. The large-flowered sorts may be dwarfed in the same way. Layer selected shoots as soon as the flower-buds appear, by plunging pots filled with rich soil, with a little sand at top; under the joint to be layered, give the shoot a twist, and bring the joint down to the pot, fix it there with a hooked peg, cover with half an inch of soil, and in three or four weeks it will be well rooted; then remove and place in the shade for a week. They may want another shift before they bloom. These dwarfed specimens tell well on the stage in front of the taller ones.

CHAPTER IX.

A CHRYSANTHEMUM BORDER.

Mr. Dale, gardener to the Honourable Society of the Middle Temple, London, is a successful grower of the Chrysanthemum in the midst of London smoke, and shares with Mr. Broome the honours that attach to the conquest of peculiar difficulties. Mr. Dale has published a very useful sixpenny manual of its cultivation "in or near large towns," and in this he gives the following arrangement of plants for a border twelve feet wide, containing five rows of the large varieties and one of Pompones in front. Many changes might be made in the arrangement, and a good effect still be produced, but on the whole I prefer to quote it here on Mr. Dale's authority, confident of its special usefulness. The first row will be of Pompones. For second row, etc., see page 239.

CHAPTER X.

EARLY-FLOWERING CHRYSANTHEMUMS.

To have Chrysanthemums in bloom at midsummer seems like upsetting the order of things; it is almost enough to chill one's warmest summer hopes, by the dreary reminder that winter is not far off. Neither do we much need them so early, for it must be a very poor collection that can need the unseasonable help of Chrysanthemums at any time between the end of June and the end of September, but after that every bloom we can have for the space of four months is welcome indeed. But it is my business rather to show what can be done, and how to do it, than to trouble the reader with a recital of my antipathies to the forestalling of the associations of winter. If folks like to have the symbols of Christmas about them at harvest-time, I know no reason why they should not.

There are now many varieties of Chrysanthemums that are precocious in their flowering, and if it is desired to have such plants in bloom by the middle or end of June, the thing may be done, and in districts exposed to cold winds, especially in the north of the island, such early sorts have a special value, for the late kinds in bad positions are sometimes so retarded as to be cut off by frosts or damaged by storms before they have time fairly to open, and these early kinds, having the start of them, compensate for difference of latitude.

The first of this kind was C. Hendersonii, a very neat orange yellow Pompone; since that became known and appreciated, many others of similar early habit have been raised, and a list of those most to be depended on for quick growth is given at the end. There are many other reputed early kinds, but I have named only such as I have proved to be both early and good, and I should advise those who are not extensively acquainted with this flower not to choose a single variety for early blooming besides those described in the list as such.

To give them a good chance, the culture should be adapted to their habit. The cuttings should be struck in February, or

the first week in March, in a gentle heat, and the whole stock potted off and stopped by the last week in March, or the first week in April. They should be assisted with a little heat after potting, and a fortnight afterwards transferred to a cold frame and stopped again. They should have a shift into pots two sizes larger early in May, say from the 7th. to the 12th., according to their forwardness and the state of the weather, but this time they must not be stopped, but encouraged to set for bloom by being plunged in ashes in the open air, and kept well watered during dry weather. By the second week in June they may have a final shift into blooming pots, and after that be freely exposed in the open air, and treated in the usual way till they bloom. By such a course of culture you may make pretty sure of a continuance of bloom from the beginning of July to the beginning of October, when the old sorts will be coming in to replace them. By forwarding a few a fortnight earlier, say stopping them for the last time the first week in April, and giving the successive shifts to correspond, they may be got into bloom by the middle of June. If we have Chrysanthemums in June, why should we not have snowdrops in July, and at Christmas put out the fires, and aver that the thermometer stands at 80°? It is indeed a merciful dispensation of things that we cannot command or check the fall of a single drop of rain, or alter the temperature one millionth of a degree. Whatever man's power over the vegetable kingdom, the seasons observe the times appointed them by Him who has ordained seed-time and harvest; and in the revolution of the year every day has its own character, its own use, and its own accompanying flower. genuine lover of nature it is "summer all the year round," and things assume a relative fitness and use widely different from the order that man's caprice puts upon them.

"O with what glory comes and goes the year!
The buds of spring—those beautiful harbingers
Of sunny skies and cloudless times—enjoy
Life's newness and earth's garniture spread out;
And when the silver habit of the clouds
Comes cown upon the autumn sun, and, with
A sober gladness, the old year takes up
His bright inheritance of golden fruits,
A pomp and pageant fill the splendid scene."
LONGFEI LOW.

LIST OF SELECTED VARIETIES.

MR. DALE'S ARRANGEMENT OF FIVE ROWS FOR TWELVE-FEET BORDER.

FOR SECOND ROW, AVERAGE HEIGHT THREE FEET.

Annie Salter, golden yellow. Beautifully reflexed.

Australie, golden yellow. A very pretty small free flower.

Bossuet, rosy carmine.

Changeable Yellow, buds tinged with red changing to yellow. Charming border flower.

Fortune, rosy red and orange. Very pretty but rather shy.

Lucidum, white. Very early, free and beautiful foliage.

Madame Cammerson, crimson tipped with gold. Pretty, small, and free.

Plutus, bright gold. A beautiful flower,

Princess Royal, rose.

Racine, gold and brown points.

Surprise, white. Early and free.

Queen Victoria, delicate peach. Very free, blooms best from old plants.

FOR THIRD ROW, AVERAGE HEIGHT FOUR FEET AND A HALF.

Astrolabe, orange nankeen. A very fine border-flower.

Cloth of Gold, yellow. Fine reflexed flower.

Cassy, orange and rose. Pretty border variety.

Comte de Rantzau, crimson. Early, the best border-flower of this colour.

Gipsy Queen, orange. Very free, early and good.

Incomparable, buff. Very free.

Jenny Lind, rosy sulphur. Very pretty.

Minerva, creamy rose. Quilled, singular in appearance,

Madame Poggi, crimson. Rather late.

Nell Gwynne, rosy peach. Beautifully reflexed.

Princess Marie, rose. Early and fine.

Weeb's Queen, light rose. Early and good.

FOR FOURTH ROW, HEIGHT ABOUT FIVE FEET AND A HALF.

Chevalier Domage, bright gold. Splendid border-flower. Gluck, golden orange. Anemone form.

Hermine, blush, petals striped up the back with purple.

Leon Lequay, lilac.

Pio Nono, Indian red and gold-tipped.

Poudre d'or, reddish orange. Early and free.

Queen of England, blush. A splendid free early border-flower.

Queen of Yellows, brassy yellow. A pretty reflexed flower.

Sydenham, carmine red. A pretty border-flower.

Themis, rose. Beautiful but rather late.

Trilby, blush. Free and full.

Versailles Defiance, bright rosy lilac. Very pretty.

FOR FIFTH ROW, HEIGHT SIX FEET.

Anaxo, red orange. Very handsome in border.

Arigena, amaranth. Fine, but rather late.

Decreque, red. Very free, blooming in clusters, beautiful for border.

Formosum, pale sulphur. Very free and pretty.

Gem, white tipped with rose. Very free.

Lysias, red orange. Early and free.

Le Prophete, golden fawn. A fine free full border-flower.

Prince of Wales, fiery red. Small and free.

Temple de Saloman, bright yellow. Free and splendid for borders.

Vesta, ivory white. One of the oldest and best, very free and splendid.

Weeb's Delight, very rich canary.

Warden, orange.

FOR SIXTH AND BACK ROW.

Beauty, peach.
Christine, peach. Very free and fall.
Duc de Conigliania, fiery red. Very free.
Duke, blush.
Doria, orange. Large free flower.
General Marceau, large dark buff. Very bold.
Goliah, large white.

Marchioness, large loose white. Very free.

Madame Boucharlet, white. Free.

Norfolk Rival, light lilac. Free.

Orlando, rosy buff.

Tassel, yellow. An old loose variety, capital for back row.

THIRTY OF THE FINEST INCURVED LARGE-FLOWERING CHRYSANTHEMUMS—SHOW FLOWERS.

Alfred Salter, delicate rosy lilac. Large and full; the best of the new varieties. (Frontispiece.)

Annie Henderson, yellow. Very early.

Antigone, fine white.

Alix, (syn. Voltaire,) rosy carmine.

Auguste Mie, pale carmine, with vellow tip, Fine form.

Aregina, rosy purple.

Annie Salter, yellow.

Beauty, peach. Fine form.

Bernardinium, deep orange, slightly shaded with rcd. Fine form.

Bossuet, pale rosy purple. Fine.

Dupont de l'Eure, shaded carmine. Distinct.

Eolè, yellow, with rose tip. Fine.

Elizabeth, beautiful white.

Genevieve, blush white.

Goliah, fine white.

Hermine, delicate blush, striped up the back with purple. Good form. fine.

King, light peach. A fine show-flower.

La Prophete, pale yellow. Fine and large.

Leon Lequay, shaded purple. Fine.

Madame Poggi, deep chesnut.

Mount Etna, splendid red.

Mr. Deschamps, canary yellow. Fine and large, first-rate for pots.

Pio Nono, bright carmine red with golden points.

Plutus, very fine yellow.

Queen of England, delicate blush white. Fine.

Stellaris globosa, crimson carmine and blush shaded. Beautifully formed, not large.

Trilby, delicate blush white. Fine.

Valerie, large cinnamon. Dwarf, and good for pots.

Vulcan, fine bright red chesnut.

Vesta, magnificent ivory white. One of the best for exhibition.

Curious.

TWELVE OF THE FINEST ANEMONE-FLOWERED, SUITED FOR SHOW-CULTURE.

Captain Moutells, light violet.
Fleur de Marie, the best white.
Gluck, golden orange.
Marguèrite de Versailles, blush.
Madame Gorderau, sulphur.
Diamant de Versailles, white guard and rosy centre.
Regulus, cinnamon.
Regulus, rosy lilac and rose.
Marguèrite, rose guard with light centre.
Eclipse, sulphur, gold centre.
Brunette, yellow. Erect habit.
Roquileure, orange centre with quilled guard of rosy red and orange.

SIXTY OF THE FINEST POMPONES, NEW AND OLD.

Abel, cinnamon and yellow anemone. New. Adonis, rosy purple and white. Distinct and fine. Aigle d'or, incurved pale yellow. Good. Anne Boleyne, bright buff, very double. Small. Atropos, crimson. Good. Auréolé, reddish salmon, gold border, with orange centre. Good. Autumna, reddish buff. Berrol, pale lemon. Small and good. Bijon d'Horticulture, delicate lemon white. Good. Bob, bright chocolate red. Changeable, but very fine and distinct. Boule de Neige, the purest white anemone. Brilliant, bright cinnamon. Good form, extra fine. Cedo Nulli, white with bluish tip. Good form. Colibri, nankeen and rose. Best out of doors. Comte Achille Vigier, pale lemon, striped with pink. Dwarf and distinct. Dr. Bois Duval, bright brown red. Good and distinct, Drin Drin, yellow. Early and good. Duruflet, rosy lilac, light centre, Fleurette, violet purple. Free and fine. François, reddish orange. Free and fine.

Fimbriata rosea, rosy blush. Pretty, but fringed.

Fauchette, Pompone anemone, light lilac blush.

General Lafont de Villars, carmine. Not quite double.

General Canrobert, clear yellow. First-rate.

Hendersoni, early yellow scented. Good.

Il Brasiero, bright brown, Small,

La Parisienne, French white. Good form, fine.

La Liliputienne, deep cinnamon. Perhaps the most profuse bloomer we have; a good plant will produce a thousand blooms in a season.

Louis XIV., chrome yellow.

Marabout, pale blush, changing to white. Beautifully fringed, distinct and good.

Marabout, pale blush, like a French poppy.

Madlle. Clemence Dalaces, white and rose.

Madlle. Felicie Albert, rosy pink, small white tip. Distinct and good.

Madame Jules d'Evry, pale blush, small yellow centre. Good.

Madame Vatry, delicate peach. Fine.

Madame Celestine Philopal, yellow, tipped with red, changing to yellow. Good form.

Mrs. Gush, Pompone anemone, bright rose.

Mrs. Dale, pale fawn with purple back.

Mrs. Westwood, silvery lilac.

Mignionette, golden yellow, tipped with red. Very small and good.

Marguerite de Valois, white guard and gold centre. A most beautiful anemone flower.

Mustapha, dark brown. Very free and fine.

Nain Bêbe, very hardy and sweet-scented; does best out of doors.

Ninon, white tipped with delicate pink. Good.

Nonsuch, golden yellow. Good.

Parpaillet, fringed blush, but not a free bloomer.

President Morel, Pompone anemone, red cinnamon. Extra fine form and very free.

President Decaisne, white, with a broad tip of rosy purple. Good.

Requiqui, deep rosy purple. Good.

Rose Pompon, quilled blush. Good.

Rose Rocquette, white and rose. Fine, but not very free.

Robert Bruce, rosy purple. Free and good.

Regulus, hybrid anemone, cinnamon. Very fine.

Sacramento, orange yellow. Profuse bloomer, and early.

Scarlet Gem, (Salter,) bright red. Very free; makes a splendid bed for early autumn; it is dwarf and bushy.

Solfaterre, pale yellow. Good.

Surprise, white tipped with pale rose. Very free bloomer, and early.

Toinette, Pompone anemone, rose. Free and fine.

Vicomte de Caumont, red and yellow centre. Fine. Zebra, rosy lilac, yellowish centre. Distinct and pretty.

TWENTY OF THE EARLIEST-FLOWERING POMPONES, ALL OF THE HIGHEST MERIT.

Adonis, rosy purple. Very fine, changing to white.

Arc-en-ciel, carmine.

Andromeda, rosy lilac.

Belle d'Août, salmon yellow.

Berroë, cinnamon, changing to yellow. Very free.

Cedo Nulli, white.

Comtesse de la Chastnes, brownish orange.

Drin Drin, yellow. Very free.

Fortunio, brownish crimson.

Hendersoni, pale yellow. Excellent under glass, and has the scent of the heliotrope.

· Homère, reddish brown.

Mademoiselle Felicie Albert, deep rosy purple.

Orion, canary yellow.

Peine d'Or, yellow. Flowering in masses; very dwarf.

Princess Mathilde, white, yellow centre.

President, lilac. Very strong, and may be struck as late as the second week in June.

Regulus, orange red.

Scarlet Gem, red. Very dwarf and bushy.

Sacramento, dark yellow. Free.

Surprise, white tipped with rose or lilac.

TWELVE! OF THE DARKEST-COLOURED POMPONES.

Bob, Sainte Thais, Requiqui, Doctor Bois Duval, Creole, Buckingham, Brilliant, Daphne, Il Brasiero, Helène, Autumnum, Liliputian.





Mrs. Norman.

GARDEN FAVOURITES.



GARDEN FAVOURITES.

THE

ARNATION, PICOTEE, AND PINK:

THEIR

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

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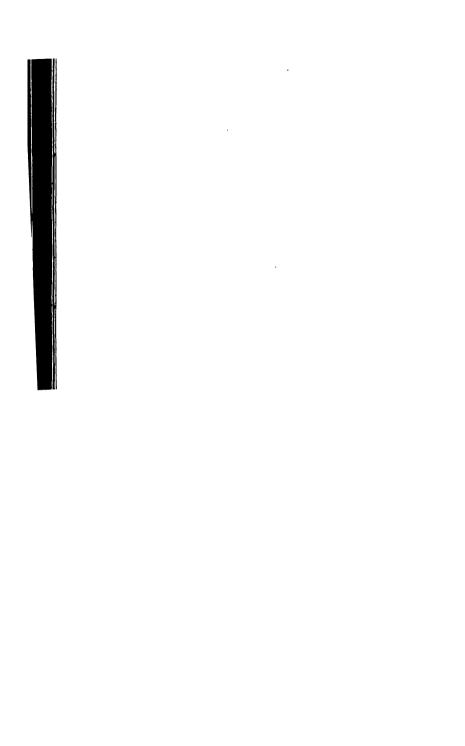
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"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON:

FROOMBRIDGE AND SONS, PATERNOSTER ROW.



THE CARNATION, PICOTEE, AND PINK.

CHAPTER 1.

HERE will we rest us, under these O'erhanging branches of the trees, Where robins chant their litanies And canticles of joy.

LONGFELLOW.

OLD TIMES AND OLD FLOWERS.

In the reminiscences of old times that history and anecdote have preserved to us, none are so thoroughly refreshing as those that pertain to our ancestors' gardens. And not a few of them remain in their original quaintness, with their noble trees and mossy lawns, their trim hedges, bowling greens, and luxuriant borders planted with the good old perennials, where not a single modern bedding plant is to be seen, but where gaiety and fragrance assert the claims of our truly national flowers, and call up many dear remembrances. Gorgeous as is the promenade style, with its "chain patterns" and "panels" in colour, its terracewalks, sculptural embellishments, and artistic devices, the brightest and most dazzling of flower mosaics must "pale its ineffectual fires" when put in contrast with the arbours and avenues, the grand old trees, and the full richness of a well-kept ancient garden,

where the old medicinal herbs load the zir with odours, and in the fiercest heat of summer a cool shade is within easy reach. Not that modern gardening is to be depreciated, for it has effected wonderful changes for the better, both as to style and detail of embellishments, and we may well be proud of the vast choice of exotics, that lend their charms to our garden scenes, and that cultural skill is so modified in character that our climate no longer opposes their adoption.

But the old gardens appeal to our sympathies, and call up associations that are homely and cheerful, and that have the peculiar charm of everything that serves to remind us of old times. Here are the green alleys, where, on sabbath evenings, the dames in their mob caps, and the gallants in their laces and gilt buckles, took their last stroll after returning from church; the herb-garden, where the housewife found a cure for every ill, and which led her to many a brown study of stupid old Culpepper and the "whole art of physic." Here are the weatherworn seats under arching branches, and the ancient stone steps that the peacock loved to strut upon, and the splashing fountain making its old music to ugly tritons and dolphins grey with age; the lawn dotted with specimens of the topiary art. vews cut to represent pyramids, obelisks, and malt-kilns; men in armour of morris-dancers set in straight lines, like files of close-shaven stiffly comporting themselves to the mathematical devices and formal patterns that surround them. When we see in the front of an old gabled mansion that has been for a century shrouded in greenery, a whole row of candlesticks and snuffers, and a huge pagan deity frowning upon them all, as if determined not to go to bed vet, all attesting to the power of knife and shears over yew and tree-box, we smile at the queer conceit, feel thankful that we have fallen on better times, and vet feel haunted by a sense of the romance which hovers over every fragment of old customs in gardening. But turn to the borders, and there see the evidences of our ancestors' love of flowers; see how they gloried in their sweet-smelling dainties, and you will dream of Lord Bacon and his "princely" garden. Sir William Temple and his "perfect" one, and you will almost smell the cowslip wine, and the birch wine, and the "cool tankard," flavoured with borage, and the bitter draughts that overdressed dandies drank at the early luncheon, and the many sweet confections and pomades that good wives invented without number to enhance their own and their daughters' charms; for then the wife was head gardener, and little feet in satin slippers made many a rustling among the sweet-smelling flowers and the medicinal herbs, even at daybreak, when modern beauties are just composing their languid eyes for the first sleep.

If you were to go over the catalogue of flowers on which the old gardeners depended for producing "a brave show," and a "goodly perfume culled from the daintiest of the daughters of Flora," you would find the "clove" to hold almost the first place amongst them. It was the pride of the parterre, where it held its bright bosses above the "paunse," and coquetted with the lily and the Sweet William, which were its ancient friends and companions. It had some nice old names too, such as all flowers had then; it was known as a friend, and was never puffed into empty importance by means of a name that twisted the tongue into a knot.

According to dictionary law (see Bailey) the Carnation derives its name from caro-flesh, on account of its colour; but by the better law of custom and tradition. Carnation is but a corruption of Coronation, by which it was anciently known, and which suggests the pretty use to which it was put as a garland flower, when garlands were in fashion. Another of its names was "gillyflower," for, though the stock is often spoken of as the "gilly," or "gilly-flower" of old times, it is quite certain that Pinks and Carnations were those pre-eminently known by such names. was the "clove" which mine host plunged into the wine-goblet to give it a spicy flavour and a rare fragrance, just as the rosemary was steeped in the ale-tankard to enhance the rich bitter and aroma of the hearty draught. Thus it became the wine-sop, and "soppes in wine" was a more common name for it than any other, and no doubt Chaucer's January found it a welcome ingredient in his potions, when he drank

Ypocras, clarre, and vernage Of spices hote, to encrese his corrage.

Whether in the garden sparkling with light, and exhaling its powerful fragrance, or in the "fair forest," where its besuty shone supremely among the quiter colours of the sward, it was never a neglected flower, but highly prized for its beauty and rare fragrance. Chaucer, in "The Tale of Sir Thopas," describes it as making a feature of the woodland:—

Ther springen herbes greet and smale,
The licorys and the cetewale,
And many a clow gilfore,
And numeg to put in ale
Whethir it be moist or stale,
Or for to lay in cofre.

Spenser, among his many fine allusions to rustic life and flowery things, uses the Carnation as a flower of love:—

Bring hether the Pincke and purple cullambine, With gelliflowres; Bring Cornonations and soppes in wine, Worn of paramours.

Shakspere was not forgetful of the beauty of "Carnations and streaked gilly-flowers;" and Jeremy Taylor does justice to their sweetness when he says,—"I would rather see thyme and roses, marjoram and gilly-flowers, that are fair, and sweet, and medicinal, than the prettiest tulips that are good for nothing."

CHAPTER II.

God made the flowers to beautify
The earth, and cheer man's careful mood,
And he is happiest who hath power
To gather wisdom from a flower,
And wake his heart in every hour
To pleasant gratitude.

WORDSWORTH.

POINTS THAT INTEREST THE BOTANIST AND FLORIST.

THE Carnation represents a very pretty and interesting botanical family, of which many members are familiar to us as hedge-row friends. We are quite used to their cheerful faces, and many of them are the most prized flowers of the wild boquet. The Carnation tribe, known in the natural system as Caryophyllacea, is one in which the characteristics are very distinct, and so strong a family likeness is there amongst them, that any beginner in botany will readily detect it, and at once assign the wayside gatherings of this class to their proper place. One point of general resemblance is to be found in the swollen joints of the stems, in which they have a faint outward resemblance to grasses; this is very striking in the garden Pinks, Carnations, and Sweet Williams. Another feature is that their leaves are undivided and opposite; that is, springing from opposite sides of the same joint, instead of being placed as in most other plants, alternately along the stem; and as they clasp the stem at the base, they offer another resemblance to the grasses.

There are many genera, but the reader who is not skilled in botany, will have no difficulty in tracing the connection of the whole with the Carnation, especially if a few species of each section be gathered during country rambles, and placed in comparison with the grand head of the order. Among the best known genera we may name Sileneæ, which comprehends the pretty wayside Campions or Catchflies, of which the most common,

Silene inflata, the Bladder Campion, is here figured. Dianthus is however the leading section, and this comprehends the Pink, Carnation, and Sweet William, in each of which the family resemblances are evident at first sight. The Soapworts, (Saponaria,) which are favourite border-flowers, constitute a distinct section; the Lychnis and its species another, of which the Ragged Robin is the chief; and in other sections we find the pretty Cerastium



Silene inflata.

and the well known Chickweed, which few uninitiated persons would suppose to be a near relative of the gaudy Carnation.

The principal genus *Dianthus*, is the one to which the Carnation, (*Dianthus caryophyllus*,) gives its name; it means "flower of God," and marks the estimation in which this flower was held long before flower-shows were thought of.

We have a tribe of Zoophytes, the Caryophyllea, named after the Carnation, on account of the resemblance of a cluster of them to a boquet of Pinks; and the grand Actinia Dianthus is a splendid imitation of a well-doubled Carnation, blooming on the sand st the sea-bottom. In England there are at least five native species of Pinks, the most rare is Dianthus arméria, occasionally met with in meadows, where it makes little inconspicuous patches of pink or white, its heads of flowers resembling those of degenerate Sweet Williams: it is quite scentless. Another and better-known species is the Garden Pink. (Dianthus hortensis.) which is generally understood to be of British parentage, the offspring of the Wild Pink, of the same name, which grows on old walls, and is sometimes called the Wild Clove Pink. A finer species is the Mountain Pink, (Dianthus coesius,) which has large handsome flowers of the true Pink form, a cheerful and welcome flower when met with in its native haunts on the high ridges and lone summits, and it spots where the mountaineer begins to feel the desolation of mountain barrenness, for it loves to crown the last peak where foot dure not tread, and is the companion of grey lichens, mountain clouds and oppressive silence. But the pride of the order is Diantus caryophyllus, the Castle Pink or Clove Gillyflower of the oll writers. This is generally regarded as the parent of the florist' Carnation; it is a pretty Pink, with a delicious clove-like perfune, which after a shower is borne by the gale to a considerable distance from the ruin on which it grows. This, the most interesting of our native Pinks, is in its growth the associate of the wallflower and the snapdragon. We have seen it growing on the old churci and monastic buildings at Cobham, once on the old ivied church of Chingford, about Rochester Castle, Sandown Castle, near Dea, as noted by Miss Roberts, who also assigns Norwich as anotier of its localities.

Thugh the trouble would be considered worth taking by very few, t would nevertheless be an interesting study in vegetable physidogy, to take this Castle Pink and give it a careful culture in the garden. It speedily changes its character, becomes larger and double, and no doubt if one cared to do over again what has already been done, a race of florists' flowers might in time be obtained from the progeny of the little Castle Pink, and how far they would differ from the parent, may be judged by comparing a full-blown show-flower with the little innocent original.

Of the Carnation and Picotee we have now hundreds of varieties, the majority of them, however, have not been obtained by the culture of the original in this country, but have been imported from Germany, where it was noticed long before the English gave



Dianthus caryophyllus.

much attention to its improvement, and where it is sufficiently plentiful to be within easy reach of the experimenter. Here t is one of the scarcest of wild flowers.

In distinguishing the varieties it will be noticed that the



The Carnation.

Carnation is the most gorgeous, and the Picotee more light and

airy. Richness and fulness of colour is the chief characteristic of the first—grace and delicacy of the second. The Carnation is the most tender, and is very impatient of damp; but the Picotee



The Picotee.

is hardier, and thrives in situations where the Carnation would prove precarious. By the engravings here given, the reader will see that the chief distinctions in point of colours are that

the Carnation is marked on the petals, from the centre to the edge, and through the edge in flakes or stripes of colour, but the Picotee has its markings along the edges of the petals only. In the florists' variety of the Pink the markings consist of what



The Pink.

is termed *lacing*, or circular stripes, so placed on each petal as to leave an edge of white outside it and another inside, and the lacing of colour should be of the same width as the outside

edging of white, as we shall see when we come to consider their several properties.

In the classification of colours we have Selfs, Flakes, and Bizarres. The last-named are the most esteemed, as they are richer in tintings and more gorgeous in effect on the exhibition stage. Bizarres, (from the French, meaning odd, or irregular,) are marked with two or more colours, irregularly placed on each petal, the prevailing tints being pink, purple, and scarlet; those known as Scarlet Bizarres have that colour predominating over the purple or crimson. Flakes have their stripes coloured on a white ground, and are classed as Scarlet, Rose, and Purple Flakes; but in the Picotee, (named after the French, Piquettée, "pencilled,") there are both white and yellow grounds, and the coloured markings are on the edges of the petals, which are beautifully fringed with rose, scarlet, purple, or some intermediate tint.

Among the varieties the least constant are the Picotees with yellow grounds, but recent improvements in these have done much towards giving them a permanence of character. The tendency of the yellow grounds to run back is no doubt attributable to their high breeding, for they appear to be farther removed from the original condition of the flower than any. We may regard the Flake as the first departure from the natural Self; the Bizarre as a second departure; the Picotee as a still farther departure; and the yellow-grounded Picotee as the most highly-bred of all, and the one most distant from the normal form, especially if we regard D. caryophyllus as the common parent of the florists' varieties.

Besides the well-known varieties of Selfs, Bizarres, and Flakes, there have lately been introduced some perpetual varieties of both Carnations and Picotees; these flower from June to November in a constant succession, and not in separate efforts as the old varieties do. Messrs. Carter, of High Holborn, in their importations of first-class Carnation and Picotee seeds from Sardinia, have done good service to floriculture in their efforts to secure supplies of these perpetuals in about fifty very distinct colours, and we should recommend Carnation growers to give Carter's "Sardinian contingent" a trial; there are at least a hundred varieties of them, and plants raised from the seed may be ex-

pected to produce at least fifty per cent of fine flowers, and the remainder will have a fair average merit as border decorations. The *Tree Carnation*, lately introduced from the continent, is much prized for forcing, and is a valuable addition to our winter flowers.

CHAPTER III.

PROPERTIES OF CARNATIONS, PICOTEES, AND PINKS.

THE properties of Carnations and Picotees are jealously looked for by connoisseurs, and a severe judgment is exercised in determining the merits of show-flowers, and to this severity we owe the excellence to which the several classes have been brought in conforming to the accepted laws of colour and form. The following are those universally accepted:—

Properties of a good Carnation.—There are five classes, namely, 1. Scarlet bizarres. 2. Pink or crimson bizarres. 3. Scarlet flakes. 4. Rose flakes. 5. Purple flakes. The individual plants of each class are judged as follows:—

The flower should be not less than two inches and a half across. The guard or lower petals not less than six in number, must be broad, thick, and smooth on the outside, free from notch or serrature on the edge, and lapping over each other sufficiently to form a circular rose-like flower; the more perfectly round the outline the better.

Each layer of petals should be smaller than the layer immediately under it; there should not be less than five or six layers of petals laid regularly, and the flower should so rise in the centre as to form half a ball. The petals should be stiff, free from notches, and slightly cupped.

The ground should be pure white, without specks of colour. The stripes of colour should be clear and distinct, not running into one another, nor confused, but dense, smooth at the edges of

the stripes, and well defined. The colours must be bright and clear, whatever they may be; if there be two colours, the darker one cannot be too dark, or form too strong a contrast with the lighter. With scarlet, the perfection would be a black; with pink there cannot be too deep a crimson; with lilac, or light purple, the second colour cannot be too dark a purple. If the colours run into the white and tinge it, or the white is not pure, the fault is very great, and pouncy spots or specks are highly objectionable.

The pod of the bloom should be long and large, to enable the flower to bloom without bursting it; but this is rare. Decided superiority of perfume should obtain the prize when competing flowers are in other respects of balanced merit. As with other florists' flowers, the standards of merit vary slightly in different localities; thus Lancashire Carnations are generally thin, and London flowers frequently have too much stuff. The judicious grower will select the best of each, without regard to schools and cliques.

Properties of a good Picotee.—It is divided into seven classes.

1. Red, heavy-edged.

2. Red, light-edged.

3. Rose, heavy-edged.

4. Rose, light-edged.

5. Purple, heavy-edged.

6. Purple, light-edged.

7. Yellow grounds, without any distinction as to the breadth of the edge colour.

The characteristics of form are the same as for the Carnation, but with regard to colour.—It should be clear, distinct, confined exclusively to the edge of the petals, of equal breadth and uniform colour on each, and not running down, or feathering, neither should the white ground run through the coloured border to the edge of any one of the petals. The ground must be pure white, without the slightest spot. Mrs. Norman, of which we give a coloured portrait, is a fine example of properties and general excellence.

Disqualifications of a Carnation or Picotee.—If there be any petal dead or mutilated; if there be any one petal in which there is no colour; if there be any one petal in which there is no white; if a pod be split down to the sub-calyx; if a guard petal be badly split; Notched edges are glaring faults, for which no excellence in other respects compensates.

Characteristics of a good Pink.—The flower must be fully

double; so much so, that it should form the half of a ball, rising up to the centre, and should be perfectly circular in outline. petal should be stout, broad, and smooth at the edges. smoothness is called rose-edged: that is, without any notches or teeth. The lowest tier of petals should be the widest, reaching in diameter at least from two to two inches and a half. next row should be shorter, so much so as to show the lacing fully on the lower petals; and the next shorter again, and so on up to the centre, which should be well filled up without confusion. The ground colour should be pure white. The lacing, or circular stripe, should leave an edge of white outside of it, and another inside; this lacing of colour should be of the same width as the outside edging of white, and should be smooth and even at the edges: in fact, laid on as if it had been traced by a skilful hand with a fine camel-hair pencil. Then, at the bottom of the petals, there should be another body of colour the same as the lacing, to form a bold rich eye.

CHAPTER IV.

GENERAL CULTURE OF CARNATIONS AND PICOTEES.

THE culture of the Carnation may be said to begin in autumn, and from the 1st. of September to the 1st. of November is the best time in which to obtain stock, and the earlier the better. Choose healthy young plants free from stain, without side-shoots, well rooted, very clean at the collar, and with hearty-looking foliage, and if they come to hand in small nursery pots, give them a shift at once into forty-eights, two plants in a pot; shade them till they begin to make fresh root, and then harden them off by good exposure for a safe wintering. We have no natural soil in which these plants can be grown, and hence, as it must be specially prepared for them, and in Carnation and Picotee culture,

the soil is so important a matter, that we must offer some special observations respecting it.

The best compost is one composed of porous loam from rotten turves, dung decomposed almost to dust, and clean turfy peat in equal parts, with one-half part of gritty river-sand, the whole to be well incorporated, and sweetened, and made clean from vermin of all kinds. If you can get a supply of turf from an upland pasture, have it cut four inches thick, and laid up in a heap for twelve months, to be occasionally turned, and at every opportunity exposed afresh to the action of frost to pulverize it thoroughly. This has been recommended in previous pages for the culture of other flowers, and is very essential in every department of flower growing.

In the absence of turf soil, secure some sweet and well-decayed leaf-mould, and mix one part with one part of two-years-old cowdung, and one-quarter part of sharp sand. If made three months before wanted for use, and occasionally stirred, it will be far better than if prepared only just before it is to be used. To make a compost on a large scale, and with materials pretty easy of access, take one load of maiden loam, the top spit only; it should be of rather stiff texture, but not so clayey as to adhere to the fingers; to this add half a load of rich black garden mould, two loads of thoroughly-rotted horse-dung from an old cucumber or melon pit. taking care that there is no mushroom spawn in it, and after having broken and mixed these together, add two barrow-loads of sharp sand, which has been well washed with water, and exposed to the weather for some little time. The stiffer the loam the more sand must be added. This ought to be made up a year in advance, and at the last turnings a little hot lime should be sprinkled through it to destroy vermin. But if you are compelled to make up a compost for immediate use, give the preference to the first one, in which the peat is of a sweetening nature, and corrective of any rankness that may exist in the other ingredients.

But stirring and turning are not all-sufficient—every particle of compost ought to go through the hands in potting, to detect any living enemies, such as wireworms, eggs of slugs, grubs, etc. In potting, use plenty of drainage and new pots; if old ones, take care that they are first well scrubbed inside and out, and exposed

to the air. As soon as the plants are potted off, place them in cold frames and shade for a week, and then if they have begun to make new growth, expose to the air as much as possible, till the winter frosts render it necessary to give them shelter. Except during storms and frosts they should have plenty of air, and free exposure all the winter long, the lights to be drawn off entirely in mild weather, and only put on at night in case of frost; and in severe weather give the additional protection of a mat, or a layer of fern. During a continuance of cold. damp weather, the pots may be allowed to get almost dry, and the lights may be kept on; but on a change to a north-east wind, give air on the opposite side by tilting, and during intervals of bright weather take advantage to water and air them well, so as to promote a steady and a strong growth. A common garden-frame on a stone bottom is the best of winter quarters for them, but they may be wintered in the same way as described in the treatise on the Calceolaria, page 77: make a bed of ashes under a south wall, put over it a shutter on hinges, which should be lifted in dry weather. During heavy rains and severe frosts the additional protection of matting will be necessary. They are moderately hardy, and with a little watchfulness may be safely wintered in this way.

About the middle of March is the time to begin to shift them into blooming pots, and they should be eleven inches across, well drained, and the plants potted in pairs in the proper compost not sifted, but passed through the hand as before, and a sharp look-out kept up against the wireworm, which is a deadly foe to these plants. They must be shifted by turning out the ball complete, so that not a fibre is injured, and must be potted firm, and placed in a sheltered spot till May, but not under cover. A bed of coal ashes in a spot sheltered from east winds is the best, and the more sun, wind, and rain they have there, from May to the time of flowering, the better. The whole stock should be in blooming pots by the middle of April at the latest.

As the blooming shoots rise, sticks of proper height must be inserted in the centre of the pots, and as they need tying to the sticks, they must be attended to or the wind may snap them off. Tie slackly, and look over them occasionally as the stems swell, to see that none of them get kneed through undue pressure of

the ligatures. When the buds begin to show how they are likely to bloom, thin out the least promising, so as to leave the most plump and healthy only; and just before they break, place an India-rubber band round each bud to prevent them bursting on one side. Strips of bast are commonly used, but they are too rigid, whereas the India-rubber, by its elasticity, yields to the swelling of the bud, and promotes its equal expansion.

As to watering, these plants are fond of moisture when growing vigorously, but during winter damp is injurious to them. When you water, give them enough to go right through the soil, and leave them thoroughly moist, but never give a drop till they really want it. As soon as the flower-stems begin to rise, they will be benefitted by a weekly dose of manure water, which must be discontinued as soon as the buds begin to open. While in bloom they need shelter from sun and heavy rains.

When the bloom is over, cut down the flower-stem, and expose the plants to whatever weather may happen; take off the layers as soon as they are rooted, and put them at once into five-inch pots in pairs, for these plants do not bear frequent shiftings well. A succession of young plants should be kept up from year to year of all kinds that prove worth preserving, and this leads us to consider the several ways of propagating.

If grown in the open ground the soil should be of a similar nature to that described for pot-culture; supposing the bed to be of a good sound loam, let it be manured liberally with very old dung, and an admixture of decayed turf and sharp sand, and before planting give the bed a good soaking with lime water to destroy vermin, and render the soil thoroughly sweet. The plants should be put in rows, twelve inches apart, and ten inches from plant to plant. If planted out at once from newly-rooted layers or pipings, it is necessary to get them in as early as possible, so as to be well established before winter, and during severe weather they may be protected with hoops and mats, but if kept over winter in pots, they may be turned out at the end of March, unless the spring is late, when it will be better to delay it till the first or second week in April. In other respects the culture in the open ground is the same as that just described for potplants.

CHAPTER V.

PROPAGATION BY LAYERS AND PIPINGS.

CARNATIONS are generally propagated by layering the shoots of the season, but I myself prefer to raise them from cuttings, a method which many object to, and against which many reasons have been urged by growers of ripe experience. But I shall not strive to fetter the amateur, but as plainly as possible set forth the plainest method of performing both operations, and with a few remarks on the advantages severally attendant on them, leave him to pursue either or both at his pleasure, for this is not a book of personal crotchets, but one of friendly gossip and earnest work.

The best time to make layers is the latter end of July or beginning of August; if deferred till late in the season they do not get well rooted in time to be established before winter. Have in readiness a small sharp knife, some finely-sifted compost made of sharp sand, light loam, and leaf-mould in equal proportions, and a number of hooked pegs from birch twigs, or cut from ripe fronds of brakes. When all is ready, begin the work in a systematic manner, dressing up all the stems of each plant first, before you begin to layer any, that you may not get into confusion.

First of all trim away from the selected stems a few of the lower leaves, sufficient to leave the stem bare for a little space next the root, leaving as many leaves above that as possible—there ought not to be less than six, and none of these should be shortened, and remember the more leaves that remain the more rapidly will the layer make root. You only want a clear space for proper tonguing and pegging down, and a couple of inches is sometimes enough for that. If there are more stems than you can layer conveniently around the plant, cut away those that are inconveniently placed, and treat as we shall presently describe for pipings. When all are trimmed, remove a little of the surface soil under each, and replace it with the sifted compost in which the layers will root more quickly.

To tongue the layer, enter the knife on the under side just below the third joint, half way through the stem, and bring it upwards, slanting through the joint, and cut the small portion of the stem remaining on the tongue immediately below the joint. Keep the layer firmly in the left hand, drop the knife from the right and pick up one of the pegs, thrust the long sharp end into the soil, and with the short hook catch the layer as the peg descends, and press gently till the tongued portion of the layer is held down firmly to the soil. In this way lay down all the shoots that are intended to be layered, and cover the slit joint



Layering.

of each with an inch of the fine sandy compost. Give no water for four-and-twenty hours, so as to allow the wounds to heal. As soon as one plant is finished, trim up and pot off the pipings before they get mixed with others, or injured by exposure to the air. The layers should be watered the next day, and the plants kept moderately moist as usual, and they will soon be well rooted. The annexed engraving will make the operation plain as to its details.

In making cuttings, or, as they are termed, "pipings," it is best to select the shoots that are below the middle strength, the atrong outer-growing ones may be left for another season's flowering, or may be layered as just described. They should be taken



A A.—Grass to be removed from second joint.

B B.—Cut smooth to the joint, and slit it through.

off in the early part of June, certainly before July, so as to be well rooted for final potting before winter. The best way to

manage them is to cut them off square immediately below a joint, and trim them to about three joints in length, removing the grass from the lower part, so that none of it will be buried in planting the pipings, for their decay would communicate disease to them.

There are several ways of rooting these pipings, but a gentle bottom heat is the most certain. Half fill with drainage a sufficient number of five-inch pots, then fill up to within an inch of the top, with the compost that you would use in layering, and the remaining inch with silver-sand. Water gently to make all firm, and insert the pipings all round close to the pot; put them into a gentle hotbed, and shade for a week. Watch them daily, giving water whenever the sand gets dry, and as soon as they begin to push fresh leaves, pot them in pairs in the regular compost.

They may be very successfully struck out of doors, in a raised bed formed of rich compost. Make the bed up of good Carnation soil, and let it be elevated three feet above the general surface. When it is ready water it well, and then dibble the holes regularly, and drop into each a little dry sand, and into the sand insert the pipings; give another watering, and when the leaves are dry, put hand-glasses over the pipings, and shade them from the sun. See that they are kept moderately moist, but never wet, and keep them pretty close and well-watched for a fortnight, when they may have air. In six weeks pot them off into small pots, or transplant them into a bed with a frame and lights over, and about the middle of September give them a first potting in pairs in five-inch pots.

But there is another method attended with still less trouble, and which is perhaps more certain than any; it is the plan which I prefer, and strongly recommend to those who have not much time for the patient practice of gardening. Get some shallow pans made with holes for drainage, or knock a hole in the bottom of an ordinary seed-pan, put one or two crocks over the hole, and fill the pan with equal parts of sand and light rich soil. Prepare the pipings in the usual way, and insert them all over the soil, water liberally to settle them, and place the pan on the flue of a pit, or in a Waltonian Case, or on a gentle hotbed, and they will soon root, and may be wintered in the pan. At the end of

March you will find the plants to be strong and bushy, and well furnished with roots; and if they have been freely exposed to air and light—not drawn at all—the roots quickly reaching the bottom of the pan, spread out laterally, and are ready for a rapid growth when the plants are put into blooming quarters. If this plan is adopted early, the plants might be got into five-inch pots before winter, in the usual way. On this plan not one in a thousand need be lost.

Now as to the two methods of propagation, it must be admitted that the pipings are the most trouble, but it is also certain that they make the best plants. One special advantage is that pipings may be taken off with no detriment to the plants, before they are exhausted with blooming, when they are in a growing humour; whereas layers must be waited for. The result is that plants from pipings may always be had in advance of those from layers; and besides being originally more vigorous, they get more of the season, to gain strength to pass the winter safely, for those that are first cut off by frost and damp, are the layers that are but imperfectly rooted, and potted too late to make fair growth before winter.

Another advantage of being early in securing a stock of plants. is that an ungenial season may come, and the blooming be retarded, and many layers may not root at all, in which case he who has taken time by the forelock in striking pipings, will thank his stars, (or me if he pleases.) that he did not make the lavers a dernier resort, for if lavers are not well ripened they will not root, or if they do they are apt to "damp off" in winter; but a piping has an inch of solid stem above ground to sustain it, which no snail will eat, and no ordinary damp effect, and as they get well rooted, if properly managed, and have an ab initio sort of growth, they make by far the heartiest stock to battle against the inclemencies of winter. Now my dear reader do as you please, layering is the orthodox way, and the one most practised, and if you take to "piping" early in the season, be careful not to cut and main your plants, and by no means take all the shoots that present themselves.

CHAPTER VI.

PROPAGATION BY SEED.

One good reason why new varieties of the Carnation and Picotee will always command good prices is that they are the most difficult of attainment, even to the most expert raisers of all florists' flowers. It is easy enough to raise seedlings, but the difficulty is to get seeds that shall be worth the labour. for the higher the breeding of the flowers the more sterile are these. and of some sorts seeds would be worth at least a guinea each grain; but even at that price it is not come-at-able. In the well-doubled Carnation the power of perfecting seed is so much diminished, that the most skilful florist cannot count on a supply, and in the case of yellow Picotees it is next to impossible to get it, and even when seed is obtained the production of new and good varieties from it is so rare as to constitute the raising of hybrids quite a lottery; but this is no reason why the amateur grower should not take his chance with the professionals, for the more rare a thing the more we prize it, and a new first-class Carnation or Picotee will always be worth more than its weight in gold. As a matter of course the partially-doubled flowers, if of good form and colour, are those most to be depended on, and it should be remembered that as the perfection of seed depends on the maturation of the pollen and the preparation of the stigma for its reception, full exposure to sunshine and heat are important aids to the production of fertile seed-pods.

When the chosen flowers have set for seed the decaying petals should be removed, and even the tops of the sepals of the calyx may be cut off, but the scissors must not be allowed to touch the styles because their function continues long after impregnation appears to have been perfected. As soon as the marked pods become brown or black gather them; tally each with the name of the plant which produced it, and keep them in paper bags till January. Then rub them out and put them

away till the middle of April, which is the time to sow them.

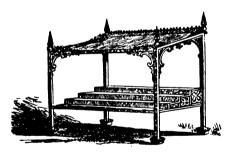
The compost for seeds should be of a similar texture and character as that for the culture of plants, but a little less rich, and rendered very fine and light. Sow the seeds in shallow pans, or in shallow twenty-four pots, covering with a thin dusting of the finest of the soil, and then place panes of window-glass over them. If the soil is well moistened before the seed is sprinkled on it, it will scarcely need any more moisture till they are up, when the glasses must be tilted, and after a short time removed. The young plants must not be pushed on too rapidly. but have free exposure, with moderate shade during hot sun till they are strong enough to bear it, and only moderately watered till they get firm stems and healthy bunches of grass. When they are large enough to handle prick them off into sixties, and when they have filled these with roots pot them into forty-eights, two in a pot, and treat as established plants. They are two years in flowering, and when that event takes place you must deal with them as so many criminals charged with outraging the laws of properties, and a pretty many guilty wretches you are sure to find that must undergo capital punishment. In fact you must get rid of every flower that is not of real merit, and an addition to what we already possess, and if you have a few really good things you will be well rewarded for your trouble. It is quite useless to preserve seedlings of any kind that are of merely middling value, for the world is quite full enough already of middling things that might well be spared. I should advise the lover of the Carnation to try a pinch of the seed sent out by Carter, and to which I have elsewhere referred.

CHAPTER VII.

CULTURE OF SPECIMEN PLANTS. PREPARATIONS FOR EXHIBITING.

In selecting the plants for exhibition choose the healthiest, with ample foliage, stout stems, and short joints. They are generally exhibited in sets of six Carnations and six Picotees, dissimilar blooms, and in stands, and the selected plants should be very distinct in character, and varieties of high merit.

By the middle of June you will have to commence the actual preparation of the plants, and as the flower-stems rise, one only must be left to each plant, and only the three top-buds should be left on it for blooming, and these not too close, but so as to bloom freely.



The stages and support-sticks are important matters, and any make-shift will be pretty sure to fail in attaining the desired end of helping the plants into perfect bloom. The platform of the stage should be quite ten feet high, and four feet above the platform there must be an awning running on iron rods or on strong laths, so that it can be entirely removed or quickly replaced, to shelter the plants from sun and rain, or give them the full daylight, as may be necessary. The feet of the stage should stand in pans made for the purpose. Those that are

sometimes used in planting dahlias are of the kind required, and they may be described as fifteen inches wide and four deep. In the centre is a hollow or vacancy, through which the posts pass to the ground, and around this orifice is a raised rim of the same height as the external rim of the pan, forming a circular cup or cistern to hold water, so that the feet of the stage are, when placed in the orifices, surrounded with water to prevent vermin from ascending to attack the plants. The great saving of trouble and the lessening of anxiety which accompanies the use of a proper stage, renders it far preferable to any other plan of protection; but in the absence of such a contrivance, the flowers intended for exhibition must be shaded with tin umbrellas or canvas caps, of the form already described at page 200 of the treatise on "The Dahlia." These should be nine or



Pan for foot of stage.

ten inches in diameter, one for each plant, having a socket in the middle to receive the tops of the support-sticks. The following directions on this head are given in that invaluable work the "Cottage Gardeners' Dictionary:"—"Those umbrellas which are formed of tin are the best, but if you make them of canvas, first make little round frames, having the rim formed with slips of wire, cane, etc., the above width, with cross-slips of the same materials, contriving a socket of lead or tin in the middle, for the support-stick to go quite through, and upon these frames paste or sew canvas, which paint with oil-colour. Either covers are placed over the flowers by running the support-stick up through the hole or socket in the middle, and resting the cap upon a piece of wire or peg, put across through holes in the stick, at such a height from the flower as to screen it from the sun and rains.

Give attention to continue to tie up neatly the flower-stalks of

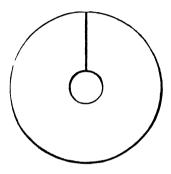


the plants as they advance in stature. When they arrive at their full height, support them erect at top with wires, having a small eve or ring at one end for the reception of the flower-stalk, so put the other end into holes made in the support-sticks. These wires should be five or six inches long, and several holes are made in the upper part of the sticks; the first at the height of the bottom of the flower-pod, the other above that an inch or two distant; and place the wires in the holes lower or higher, that the ring may be just even with the base of the calyx, to support the flower in an upright position, and by drawing the wire less or more out. the flower is preserved at such distance from the support as shall seem necessary to give it proper room to expand; and if two or three of the like wires are placed also in the lower parts of the support-sticks, placing the stem of the flowers also in the eye of the wires, all the tyings may be cut away."

There are a few other precautions necessary to success, and these bear especially on promoting the regular

opening of the flower, and its disposal after it has expanded. The pods have sometimes a tendency to stop short in their growth, and open at the edge of all the sepals, and sometimes to burst along one side. This is occasionally owing to a too long withholding of water, but with every care it will frequently happen; and to guard against it slip over every bud, just before it begins to burst, a small India-rubber band, such as are sold by stationers; strips of bass are generally used, but an elastic material is far preferable. But this is not all-sufficient, for as soon as the calyx begins to break, it must be carefully slit from the top in two other places, by

means of a small pair of narrow-pointed scissors; the natural opening and the artificial ones should be at equal distances from each other. At this juncture make ready a sufficient number of disks to dress the flowers on. These collars should be of stiff white paper or thin card, cut circular, and three or four inches in diameter, having a hole in the centre, and a slit from the outer edge to the central perforation. By bending, the collar is easily slipped on the pod, to receive the bottom of the petals withinside the



calyx, the leaves of which are torn down and spread out to receive and support the collar, and enable the petals to expand equally. Upon the collar the petals must now be cleverly arranged, each must be brought down into its place as the flower opens, and every imperfect petal must be pulled away. Spread out the longest petals undermost, and the next longest upon these, and so on to the middle; the more tiers of perfect petals a flower has, the greater is its value and the esteem in which it is held, other points of course being equal.

CHAPTER VIII.

PINES AS SHOW AND BORDER-FLOWERS. TREE CARNATIONS. FORCING.

The beauty of the Pink is very different from that of the Carnation or Picotee; the flakes and ribbons of one, and the delicate edgings of the other, never occur in the Pink, which is marked with lacings round each petal, as if the colour had been laid on with an artist's pencil; but there is always colour at the base of the petal, and sometimes one-third along the petal, so as to form a centre or eye of colour, and this eye never occurs in the Carnation or Picotee. In the pot-culture and the propagation of Pinks, the same rules apply as have been laid down for the treatment of Carnations; but the Pink is much more largely used as a border-flower, or is bloomed in collections in beds, and thus takes a place beside the pansy, anemone, and ranunculus.

To keep up a collection of high-class merit, the florist must depend entirely on "young stuff," for old plants are of little use except as border ornaments; but for this purpose they are valuable, and the collection must be kept up with layers, pipings, and seedlings, according to the methods already described. As soon as the show-flowers are out of bloom take them up, trim off the flower-stems, and plant them in the borders a little deeper than they were before. They will soon put out fresh roots, and form strong bushy plants, and next season will flower most abundantly.

The month of September is the best time to put out the new stock of young plants, and they ought to be grown on raised beds, formed every year of fresh soil—two parts sweet turfy loam, and one part well-decayed dung, the whole thoroughly mixed and pulverised long before the time of planting. The bed should be raised six inches above the level of the surrounding soil, and the surface should rise towards the middle like a pitched roof; the bottom to be well drained, and the soil uniformly one foot deep.

The stock should be put out in these beds the first week in September, twelve inches apart every way. Some growers defer the planting till October, but if the winter comes in early, with much wet, plants put out so late are likely to suffer. During



severe weather the bed should be hooped over, and the plants protected with mats; but these should be removed at every opportunity, that the plants may enjoy plenty of air and light. In the spring the soil must be occasionally stirred, and the surface mulched with decayed stable dung; and during dry weather, just before flowering, the plants should be well watered with weak liquid manure. In all other points the treatment of Pinks is the same as that of Carnations and Picotees.

Tree Carnations are of much more robust growth than the florists' kinds, and should be potted singly. If really fine plants are wanted, do not allow them to bloom the first year, but nip off the top to promote a bushy habit, and allow no flower-stems to rise till the second autumn. Those intended for blooming early in the winter, should be put into eight-inch pots in the spring, and encouraged to grow freely and kept from blooming. Another lot may be potted in the same way about the middle of July, to bloom in the early spring. These are invaluable in the winter as greenhouse and conservatory ornaments. They throw up numerous flower-stems, and make a splendid show that lasts all the winter through. The Tree varieties are the best for forcing, but all other kinds may be forced, the freest growers being the best for the purpose. Pot them singly in eight-inch pots as soon as they have made root, and choose those of most forward growth. Grow them strong by fair exposure, and at Christmas begin with a temperature of 45°, raise it to 50° by the 1st. of January, to 55°, with a rise of 6° or 7° during sunshine, a week or two afterwards, and you will not lack spring flowers or spring odours.

> مان 180 کارن درېچې کا هنده

CHAPTER IX.

ENEMIES OF THE CARNATION.

The principal enemies of the Carnation are green fly, wireworm, red spider, and mildew; the last is the most serious of all. In the preceding pages many remarks occur on the means necessary to remove insect pests, and to avoid unnecessary repetition, we shall here only remark that slices of carrot or potatoe are efficient traps for wireworms; tobacco-smoke is the remedy against the aphis, and sponging every leaf with tepid water the best mode of eradicating red spider. But the mildew is peculiar to this tribe of plants, and if not checked in time may destroy a whole collection. The cause is damp, and the first step to a cure is to insure a dry air to the stock by ventilating the frames, or removing those affected to another spot. The affected parts should be sprinkled with sulphur, and if any leaves appear particularly affected, and especially if black spot appears, which is an aggravated form of mildew, remove those leaves immediately.

Here we close our pages again for a month, during which interval the entire face of nature will be changed, and the price of coals and lamb's wool will take precedence of debates on flowers. But we shall not forget that the bloom of beauty awaits us when its season shall return, and our pen will keep us in remembrance of our duties, our readers, and our out-door pleasures, which in winter are as rich in hope and anticipation as they have been for months past in the realization of the joy of flowers. "God made the country, and man made the town," and a perpetual summer would doubtless be as unwelcome as an endless frost, for our feelings change with the seasons, and the yule-log sends its light in advance, to consecrate those flowers of domestic peace which blossom to perfection at the fireside.

It is not dreary, Nor sad nor weary, But simply a season of rest.

SELECTION OF VARIETIES.

THE following list includes a selection of the finest sorts from the stock of Mr. John Holland, of Bradshaw Gardens, Middleton, near Manchester, who is the leading grower of these beautiful flowers. Those marked thus • are new varieties of the very highest merit. London purchasers have the advantage of selecting from the stock of Mr. Turner, of Slough, who admirably represents this class of flowers, and retains in his stock none but the most valued varieties.

CARNATIONS.

Dodwell's Alice.

SCARLET BIZARRES.

Appleby's Rainbow. Atterton's Fanny Gardner. Bunn's Lord Lewisham. Colcutt's Brutus. Elv's Jolly Dragoon. - Sir Joseph Paxton. Hale's Prince Albert. Heap's Mr. Peto. Hepworth's Brilliant. Holland's Mr. Ainsworth. Holliday's Lord Rancliffe. Kave's Excelsior. Martin's Splendid. May's Bardolph. ---- Coriolanus. ---- Bollingbroke. Puxley's Prince Albert. ---- Howard. - Omar Pasha. --- Silistria. Rainford's Game Boy. Slater's Robin Hood. Strong's Duke of York. Turner's Oliver Goldsmith.

PINK OR CRIMSON BIZARRES.

Cartwright's Rainbow.

---- Fanny. Elv's Lord Milton. Gill's Lord Goderich. Haines's Black Diamond. May's Falconbridge. ---- Owen Glendower. ---- Galatea. ____ Admiral Dundas. ---- Prince of Denmark. - John O'Gaunt. Puxley's Prince Albert. ____ Jenny Lind. ___ King of Carnations. — Норе. ---- General Simpson. ---- John Gair. ____ Lord Cardigan. ----- Morgan May.
----- Sir Colin Campbell. • — Tenby Rival. ---- Warrior. Parker's Captain Franklin. ----- Glory. Slater's Warrior. Ward's Sarah Payne. SCARLET FLAKES.

Addenbrook's Lydia.

| | l |
|--------------------------------|--|
| Jackson's Aglaia. | iva |
| May's Lorenzo. | Æ |
| —— Poor Tom. | 33 |
| Aglaia. | - |
| Friar Lawrence. | 3 |
| Benedict. | ĭ |
| —— Talbot. | y |
| King John. | 1 |
| Morton's Lovely Mary. | 1 |
| Puxley's Princess Royal. | 1 |
| Madame Sontag. | 1 |
| Rosy Queen. | 1 |
| Schofield's Magnificent. | 1 |
| Tongue's Prudence. | 1 |
| | -1 |
| PURPLE FLAKES. | 1 |
| Dodwell's Edith. | 4 |
| Ely's Mango. | 1 |
| Fletcher's Miss Dawson. | |
| Holland's Earl of Wilton. | 1 |
| Admiral Napier. | - 1 |
| Colonel Windham. | |
| Jackson's Triumphant. | |
| Lee's Napoleon. | |
| Mansley's Beauty of Woodhouse. | |
| May's Ascendant. | |
| Jacques. | |
| Puxley's Prince Arthur. | |
| Prince Albert. | |
| Slater's William Bow. | |
| Turner's Ulysses. | |
| - | |
| | May's Lorenzo. Poor Tom. Aglaia. Friar Lawrence. Benedict. Talbot. King John. Morton's Lovely Mary. Puxley's Princess Royal. Madame Sontag. Rosy Queen. Schofield's Magnificent. Tongue's Prudence. PURPLE FLAKES. Dodwell's Edith. Ely's Mango. Fletcher's Miss Dawson. Holland's Earl of Wilton. Admiral Napier. Colonel Windham. Jackson's Triumphant. Lee's Napoleon. Mansley's Beauty of Woodhouse. May's Ascendant. Jacques. Puxley's Prince Arthur. Prince Albert. Slater's William Bow. |

PICOTEES.

Those flowers marked h are heavy-edged—l light-edged. Those not marked are intermediate.

| PURPLE-EDGED. | Dodwell's Captain Dalgetty, h. |
|---------------------------------|--------------------------------|
| Bayley's Duke of Devonshire, h. | Little Harry Bertram. |
| Borrough's President, h. | ——— Annot Lyle, L |
| Dodwell's Amy Robsart. | * Mrs. Bayley, h. |

| Eyre's Mrs. Eyre, l. | Schofield's Ann, l. |
|----------------------------------|------------------------------|
| Fellow's Countess, h. | Turner's Lady Shadwell, A. |
| Holland's Countess of Wilton, h. | ——— Mrs. Kelke, <i>l</i> . |
| Miss Holland, L | Rosetta, I. |
| Hudson's Celia, l. | Mrs Dodwell A |
| Keynes's Mrs. Keynes, L. | * — Eugenie, l. |
| Matthew's Enchantress, l. | Pitmen h |
| Bridesmaid, 1. | * Sultana. |
| May's Portia, | • Mrs. Lochner, h. |
| Bianca. | Youell's Gem, l. |
| Nerissa, h. | Tracing Genny 2. |
| Amazon, h. | ROSE AND SCARLET-EDGED. |
| Finis, L | |
| Mitchell's Nulli Secundus. | Barnard's Mrs. Barnard, l. |
| Norman's Lord Nelson, h. | Dodwell's Kate, h. |
| ——— Mrs. Keynes, l. | Laura. |
| Read's Fair Helen. | — Mrs. Turner, l. |
| Turner's Lady Harriet Moore, h. | Dodwell's Minnie. |
| Norah, <i>l</i> . | Fellow's Frances, l. |
| Mrs. May, A. | ——— Marion, h. |
| * Mrs. Aitkin. | Giddin's Miss Desborough. |
| * —— Bessie. | Green's Queen Victoria, A. |
| Wood's Princess Alice. | Headley's Venus, h. |
| | Hoyle's Alice, h. |
| DED-EDGED | Jackson's Mrs. Crowe, 1. |
| RED-EDGED. | Lady Fair. |
| Brook's Duchess of Cambridge, h. | Marris's Victoria Regina, A. |
| Buswell's Theodore, A. | Bertha. |
| Fellow's Giulia Romano, h. | No. 49. |
| Headley's Mrs. Headley, h. | May's Calliope. |
| Prince Albert | Rosalind. |
| Chancellor, h. | Thalia, h. |
| Hepworth's King John, h. | Turner's Ariel, ?. |
| Hoyle's Mrs. Hoyle, h. | ——— Miss Puxley, l. |
| Kirtland's Henry VIII., L | Lady Grenville, h. |
| — Miss Holbeck, l. | * Lady Eleanor Cathcart. h. |
| Countess Waldegrave, l. | * Mrs. Drake. A |
| Marris's Prince of Wales, h. | Mrs. Gair, I. |
| Hogarth, h. | Mrs. Pitman, h. |
| May's Thisbe, A. | • |
| Norman's Mrs. Norman, h, (fron- | YELLOW. |
| tispiece.) | Barraud's Euphemia. |
| —— James II., h. | Bragg's Princess Alice. |
| Princess Amelia, l. | Brock's Aristides. |
| | DIOGE & MITSHUGS. |

| Champion. May's Malay Chief. — Malvolio. Mrs. Burman, I. Wellington's Le Amiable. — Le Petit Princess. — Le Marquis. — Le Emperatrice. — Duke of Marlborough. | Wellington's Duchess of Mariboro'. Rosette. La Empress. Guernsey Maid. Lady Sale. The Rev. J. Shadwell. FANCY. Holland's Countess of Ellesmere. |
|---|--|
| PINE | ss. |
| PURPLE-LACED. Auckland's Mary. Bayley's Daniel O'Rourke. | Maclean's Brunette. ———— Great Criterion. Marris's Geraldine. Norman's Colchester Cardinal. |
| Bragg's James Hogg. —————————————————————————————————— | |
| Ruby. Colcutt's Sappho. Eldridge's Pearl. | Read's Ada. Richard Cobden. Taylor's Mango. |
| Ellis's Post Captain. Faulkner's Duke of St. Alban's. Giddin's Jenny Lind. | Teebey's Thunderer. Blackboy. |
| Hand's Pilot. Hudson's Magnificent. | Turner's Masterpiece. Optima. Mrs. Judd. |
| Sarah Ann Triumphant Selina. | Alice Earl of Carlisle Glory. |
| Kirtland's Vesta. Lightbody's Arnotdale. Looker's Warner Henly. | ——— Richard Andrews. Westbrook's Star. Wilmer's Laura. |
| Attraction. Reliance. Duke of Wellington. | RED-LACED. |
| Eclipse Lavinia Alfred. | Bragg's Lord C. Wellesley. ——— Mrs. Bragg. Bunkell's Maria. |
| Juno Purity Duchess of Marlborough. | Hilyer's Goliah. Hodge's Melona. Hollyoake's Duchess of Devonshire. |
| Maclean's Narborough Buck. | Keynes's Mrs. Wolfe. |

PICOTEE, AND PINK.

's Othello.

- Leader.

n's (alias) Cant's Criterion.

- Mrs. Maclean.

- New Criterion.

s Caroline.
Angelina.

's Esther.

- Beauty of Salthill.

- Duke of Devonshire.

BLACK AND WHITE.

Beauty of Clayton-le-moor.

Beauty of Home.

Black-eyed Susan.

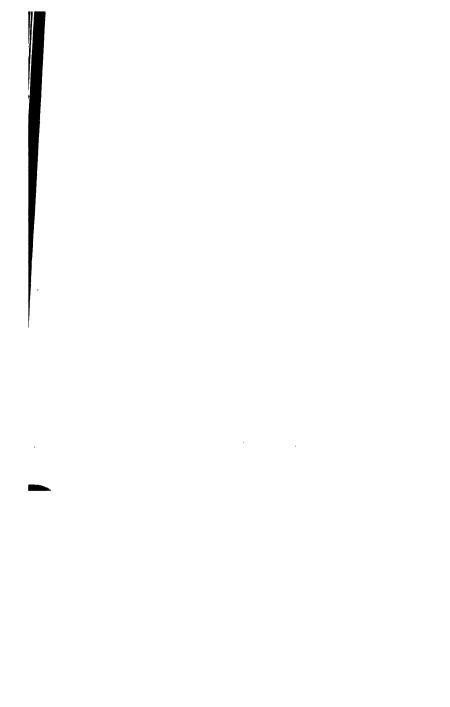
Fairbrother's Beauty of Blackburn.

Gregson's Lady Bold Houghton.

Hooper's Favourite.

Standard of England.

Virgin Queen.

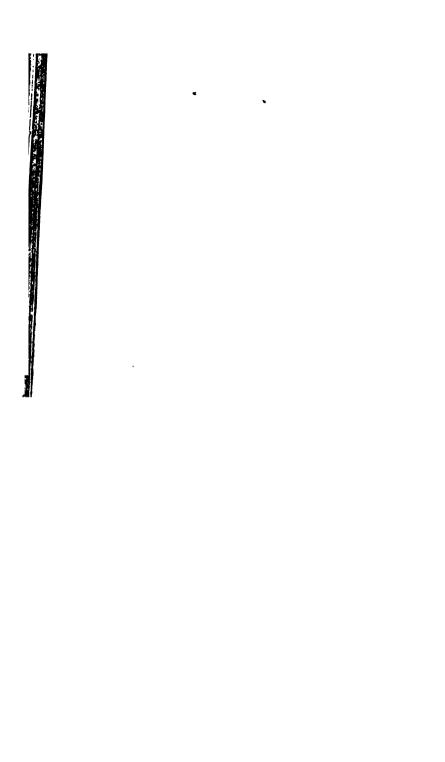






Eir John Mugre.

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GARDEN FAVOURITES.

THE

URICULA, POLYANTHUS,

AND PRIMULA:

THEIR

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

BY SHIRLEY HIBBERD,

Author of "Rustic Adornments for Homes of Taste," etc.

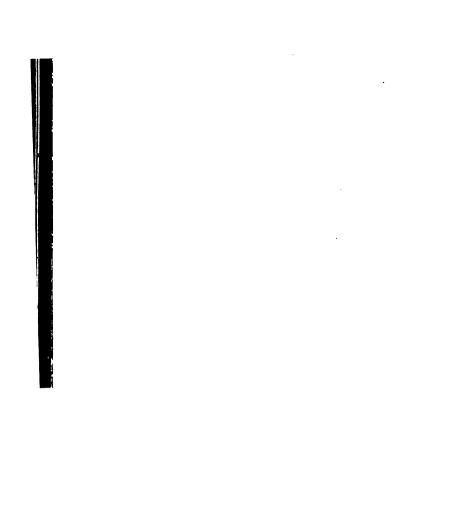
"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON:

OOMBRIDGE AND SONS, 5, PATERNOSTER ROW.

M DCCC LVII.



THE AURICULA, POLYANTHUS, AND PRIMULA.

CHAPTER I.

"It is the same! it is the very scent,
That bland, yet luscious, meadow-breathing sweet
Which I remember when my childish feet,
With a new life's rejoicing spirit, went
Thro' the deep grass with wild flowers richly blent,
That smiled to high Heaven from their verdant seat."

SPRING FLOWERS .- THE AURICULA AND ITS FRIENDS.

BLESSED is the ministration of flowers to the heart and mind of man! They call him aside from the hurry of life into the repose of dewy verdure, where he may breathe freely in the midst of freshening odours, and for awhile forget "the weariness, the fever, and the fret" that have too long chafed his spirit, and blighted the noblest aspirations of his being. At this dead season, when Nature wears her gloomiest aspect, and the howling of the storm among the barren branches assures us of the cessation of growth in all things, the heart leans forward into the future, and imagination already pictures the first glow of the spring flowers which are to usher in another year of life and gladness. It is the moral of the fact which entrances us; it is the assurance that death shall not utterly prevail, that "out of the darkest evil grows the brightest hope," that invests the spring flower with a meaning higher and

more lovely far than any appeal it makes to vision, and thus compels us to welcome it as a part of the "silver lining" to the cloud of winter, which we recognise as one of the grand providences of the world. The spring flower, emerging into life and beauty from the death-like stillness of winter, is an emblem of that renewal of man's life beyond the grave which God himself has promised, and the certainty of which man feels suggested to him in his own spiritual experiences, and every solitary reflection on the nature of his relation to the Most High. Flowers always foreshow more than they express, and spring flowers are the most spiritually suggestive of any, for there is a moral grandeur in every circumstance of their birth, and growth, and maturation: they show how life may be called out of death, and its mysterious web woven from materials apparently antagonistic to its nature. They represent the morning of creation, when God quickened the womb of Chaos, and called the glory of the world from utter negative into positive strength of development, and on all things stamped the freshness of that primal spring and beginning of natural and human history.

Is it not with a shadowy consciousness of man's dependence on God for the renewal of seasons, and the continuance of life from year to year, that we hail with such strong yet quiet joy the appearance of the earliest flowers? Has not the presence of winter, sublime as its lessons may be, half persuaded us that we have come to the "end of things created," and that hence we fly to the first spring blossom as a token that Time still wheels the seasons round according to Almighty appointment, and Death is in no wise "an eternal sleep?" God literally creates the universe every moment, and the daisy on the sod is as good a witness as "Orion and Arcturus huge" of the presence and work of Him by whom, and to whom, and through whom are all things.

Just think of the spring flowers, what they are. The Florist counts them by hundreds, for all the climes of the earth have contributed to his vernal gatherings, but on the hedgerow and among the grey oaks of the woodland what precious homely things does spring bring forth! Does not the sunshine fall softer where the daisies grow? and do we not hail the first of that pretty race as the choicest pearl in earth's sea of verdure, the flower of home

and childhood, and youthful innocence, that carries the memory back to the world of buttercups, when every meadow was a "field of the cloth of gold," and the heart was in blissful ignorance of the clouds of care that have since shadowed the once bright heaven of its lifetime?

> "Well by reson men it calle maie, The daisie, or else the eye of daie, The emprise and the flowre of flowris all."

If we were to assemble the spring flowers in a grand procession, what a countless troop of virgins should we have to invoke the season of verdure! And every one would be a flower of childhood and home, that would bring to memory many a refreshing reminiscence. We should call to mind our gleeful clapping of hands when, as the fog of a February morning cleared away, the first burst of crocuses and snowdrops broke upon us, and we thought summer would come in a week or two, or perhaps asked "if it was summer yet?" not knowing, as we do now, how with patience and hope we must wait for the realization of every blessing. We should single out from that vestal throng of virgin meekness many of our earliest and dearest of out-door friends, the delicate daffodil, the shy violet, that with its odour steals upon us unseen, like music out of darkness. We should feel a strange thrill and fluttering of the heart as daisies and buttercups moved along before us, but the height of our joy would be to see the dainty primrose, all freshness, and tenderness, and delicacy, with its bright green garments and homely face of content, as it glided past hand in hand with the emerald oxalis and the half-blown vernal squill. whispering as it went "cowslips are coming." Oh, the joys of youth! how they hover in the dream-land of memory, every bright incident among them woven around with delicate spring flowers!

If the heart is not cold as stone, it must remember with joyful tears the sunny pictures of delight in which life was set from the beginning, when the furrowed brow and grey hairs were benignly hidden in the future. We began life with primroses, that would only minister to our love of beauty, for flowers are the soul's medicines; but autumn finds us searching for blackberries to gratify avarice in the pursuit of utility in the midst of thorns and briers. Life was then all novelty, checkered, perhaps, with

occasional passing sorrows, that seemed to say the story was too good to be true; but joy set his bright mark high above all other things, and the young soul clapped its wings gladly in an atmosphere of sunbeams. Oh, if we could again watch the snowy winter away with such a zest as we then did to catch sight of the first crocus, if we could fling conventionality from us, and once more scream. and shout, and roll frantic in the long grass among the blinking buttercups; if we could again feel the hushed serenity with which we were possessed when wandering alone to gather primroses and cowslips, we should cry "the days of my youth, Oh stay for ever! Oh Time, teach us none of thy bitter lessons!" And vet after all we were ignorant of our bliss, and had we not learned that life has its dark as well as its sunny side, we should be blind to memory's fairest pictures, and forgetful of the precious recollections of the past: therefore let us thank God for flowers, which awaken heavenly emotions within us, and by their rise and fall, their regular succession and perennial circuit of change and character, teach us to accept the order of things appointed by Heaven as the only one adapted to our material wants and spiritual desires.

"Receive

Thanks, blessings, love for these thy lavish boons, And, most of all, their heavenward influences, O Thou that givest us flowers."

Coming to matters of fact, the subject of this treatise might be dealt with in as pleasing a manner as any that we have had or shall have in the whole series. It would be a poor wit that could not preach a good sermon or write a good essay on a primrose alone, for it is a pet of the poets, a genuine old English and national friend, and, botanically considered, one of the most interesting flowers in our home Flora. The primrose is the representative of the pretty order to which the Auricula belongs, and the order is called after it *Primulaca*. Its very name is "love's own poetry," for it proclaims it as the first or primal flower of the spring garland. This order is one of the most distinct of any, and whoever has noted a primrose well, will immediately recognise any member of the family, and assign to it the cowslip, the polyanthus, the Auricula, the cyclamen, the pimpernel, and the

rare water violet. The distinctive features of the order, as exhibited in the primrose, are a tubular calyx, marked with five distinct angles, a salver-shaped corolla, which contracts where it enters the tube. The foliation is also very much alike in the several members of the family, usually springing from the root and forming



The Primrose.

a low tuft, out of which the flowers rise in umbels or trusses. In its minuter characters the flower has a slender style, and what is termed a capitate stigma. In the primrose and its near allies the polyanthus and Auricula, the seed-capsule opens naturally by ten teeth, but in the pimpernel the seed-yessel resembles a

round case with a lid, which may be taken off, when it displays a great number of seeds packed closely together; but a feature common to the whole order is that the anthers have scarcely any filaments, and are fixed to the corolla in the centre of the lobes, instead of being alternate to them, and the capsule is only one-celled, and with a central placentra to which the seeds are attached.

The majority of flowers in this order are pale-coloured and early in blooming, and from their associations with spring-time and country pleasures have been bravely celebrated in our national song. Clare gives a hearty welcome to the

> "Pale primrose! starting up between Dead matted leaves of ash and oak that strew The every lawn, the wood, and spinney through, 'Mid weeping moss and ivy's darker green. How much thy presence beautifies the ground!

Kirke White dedicates to it one of the sweetest of his pathetic odes.

"Wild offspring of a dark and sullen sire, Whose modest form, so delicately fine, Was nursed in whirling storms, And cradled in the winds."

And throughout Chaucer, Spenser, Shakspere, and Herrick, the allusions to this and the *paigle* or cowslip are innumerable, and ever associative with pictures of innocence and thoughts of spring. Ben Jonson, enumerating the flowers of spring, speaks of

"Bright day's eyes, and the lips of cows;"

and in times when every good housewife made birch wine and cowslip wine the paigle had a national importance, and though it ceased to bloom out of doors, its clear, fragrant, wholesome juices gladdened the heart till spring came again. Then it was that the village maiden could say as Christabel did of her wildflower drink—

"It is a wine of virtuous powers;

My mother made it of wild flowers."

The Auricula, which bears so close a resemblance both in structure and habits to the primrose and polyanthus, is a genuine

old English flower, though its improvement as a subject of floricultural art is comparatively recent. In the cottage garden it
is a very ancient friend, and Dame Thrifty would as soon think
of parting with her favourite tabby cat as with that little row of
mealy 'recklesses' that have braved so many hot summers and cold
winters in her lattice window or out in the forecourt. At the
other extreme as to culture, humble life still claims the Auricula



The Cowslip.

as its own flower, and the poor Lancashire weaver, or the smokedried artizan of the south Yorkshire towns, shows this flower in its highest state of perfection, being as choice and critical in its breeding as an Arab with his high-blood mares. Indeed with the artizans of many towns the Auricula is the subject of a passion as great as ever the Dutch have felt for the hyacinth

or tulip, and though there are many professional growers who give much of their heart to it, it is almost exclusively an amateur's flower. Though a native of the Alps, it has long been known here. Gerarde records its cultivation as being very general about London at the end of the sixteenth century; it was then known by the name of Bear's Ears, and this ursine comparison prevails in its technology generally. Botanists have it Auricula ursiflora, though its modern name is Primula auricula, the specific term still keeping to the idea of an ear; the French call it Oreills d'Ours, the Italians Orecchia d'Orso, and the Germans Bärenörklein.

The Auricula is, like most of its kindred, strictly Alpine in constitution; it is found wild on the Swiss Alps, and in the elevated regions of Italy and Germany, and has been met in the vicinity of Astrakan. The Flemish gardeners have the repute of first making it generally known on the Continent, but nowhere has it been so much improved and highly cultivated as in Britain. In its wild state its chief colours are red and yellow, and the mealy powder which covers both blossom and leaves is common to it whether wild or cultivated. There is, however, a variety known to florists as Alpine Auriculas, which have a fresh green foliage almost entirely free from this powder; these are more easily cultivated than the others, but never equal them in richness of colouring or massiveness of form and structure.

Like the primrose, the Auricula is one of the earliest spring blossoms. It opens into its full beauty of colouring with great vigour immediately after frosts; indeed we have had the Alpine sorts in full bloom at the very time that the earth around them was frozen hard, and but few other signs of life visible. The change effected in it by a long course of patient culture is one of the most remarkable that can be cited; not only does it sport into all the colours of the rainbow, from dazzling gold to imperial purple, but it takes tints and markings of geometric regularity, in its green, brown, grey, and maroon marblings, edgings, and centreings, and conforms as closely to the law of properties as any flower in our floral lists. These qualities in a great measure account for the enthusiasm felt for a flower which is of little use in the general decoration of high-class gardens, for it is no competitor with the rose, the pelargonium, or the calceolaria; its

beauties are distinct from all the gay summer blossoms, and even for the mixed border it can never become a prominent ornament, on account of its peculiar individuality both of appearance and constitution.

In the Linnman system the Auricula is placed in the fifth class, Pentandria, and the first order, Monogynia, having five stamens and one pistil. There are five distinct species of Auricula cultivated in gardens, all of which were introduced from Switzerland about 1596, namely, Primula auricula, yellow; P. calycantha, which has a coloured calyx; P. integerrima, P. lutea, yellow, of which there is a double variety much prized for bedding; and P. hortensis, the parent of the splendid race of show flowers. These are probably rather varieties than species, but they are very distinct in character, and have special uses in garden and greenhouse decoration.

CHAPTER II.

"See

Where, arrayed in sparkling dress and velvet pride, Like brilliant stars arranged in splendid row, The proud Auriculas their lustre show."

KLRIST.

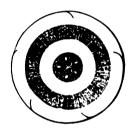
CONSTITUTION OF THE AURICULA .- PROPERTIES OF SHOW FLOWERS.

THE Auricula is essentially a fancy flower. To take any pride or pleasure in its culture, we must keep close to floricultural rules, and, whether we exhibit or not, grow the flower after exhibition models. It is not a subject for bedding in any general way; it does not produce masses of mere colour, which by contrast and judicious grouping would give special tone to any gardening scene;—its whole beauty is confined to its individual character; and though it is universally loved and cherished for its sweet

perfume, its fine foliage, and its exquisite pencillings, it is almost impossible to regard it in any other light than as a true Florist' flower, and in that sense it is well worthy of all the pains that may be lavished upon it, for a stage of well-bloomed Auriculas presents a spectacle unsurpassed for richness and precision of colouring.

As an alpine, we may expect this flower to be tolerably hardy, and so it is, but it is so peculiar in its nature that it will not bear the treatment to which ordinary hardy subjects are submitted. It should be remembered that in its native localities among the Alps, the Auricula is subject to very few changes of temperature, for during the depths of winter it is covered with that best of matting, the snow, and although found on moist ledges among clumps of fern and beds of moss, it is seldom exposed to stagnant





water or long-continued drought. Hence in its culture it needs during winter the protection of a cold frame, plenty of air even during cold weather, thorough protection against damp, and, owing to the mealy nature of its foliage and flowers, and its tendency to rot at the collar if injudiciously watered, it must never be wetted over-head—the syringe is just the thing it does not want. But if these particulars render special care necessary, its general hardiness and vigour of growth, its ready propagation by division and cuttings, its free seeding, and easy preservation during winter even without the aid of glass, largely compensate for such care as may be necessary in its culture, and fit it most especially for the circumstances of humble cultivators.

In the exhibition of the Auricula properties are very closely judged, and this flower conforms readily to the ideal standard, certainly more than any other flower. We have brought the pansy very nearly to the form of a circle, but the Auricula not only realizes the outline, but, as it gets higher bred, the indentations where the petals meet become less and less, and in the disposition of the markings the rule that requires equal divisions of the four concentric rings comprised within the circumference of the flower is very closely realized. As these several matters are of more importance in the case of this flower than in most others, we shall be minute in our description of the several points which constitute a perfect flower.

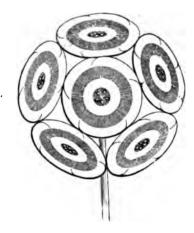
The terms used in describing an Auricula are as follows:—
Thrum, parts of fructification in the tube, or centre of the flower. Paste, white circle next to the tube. Ground colour, circle next to the paste, being the distinctive colour of the variety. Edge, outer circle or border. Pip is a single flower. Truss, a number of flowers on a common flower-stalk.

The characteristics of a good flower are that the pip should consist of four circles, formed at equal distances round a given point. The first, the tube, round, of a yellow colour, the thrum rising a little above the eye, or paste. The paste, pure white, dense, and round. The ground colour should be dense and distinct, perfectly circular next the paste, slightly feathered towards the edge. The edge should be distinct in colour, whole, and circular, instead of starry in outline. The whole pip should be round, flat, and smooth at the edges. All the pips in a truss should show boldly, without overlapping.

In addition to these leading properties, a few other points deserve consideration. Auriculas are judged in trusses, but in the first year of blooming it is usual to be lenient on this score and judge rather by pips. A fine Auricula has a very firm stem, long enough to carry the blooms above the foliage. The truss should be very round and compact, but without any crowding towards the centre, and every pip should stand upon an elastic foot-stalk. The faces of the corollas should be regularly presented, and any ill-placed pip should be removed; but should the removal destroy the completeness of the truss, it would be better to let

it remain, and wait for the next blooming to determine the value of the plant.

The pips are the main attraction, and if of high quality we may overlook minor blemishes, because in a second blooming these may disappear; whereas, if the pips are of poor quality, the grower may labour in vain to bring them up to his standard of perfection. There should be at least eight pips in a truss, and if the corollas are finely developed there will seldom be room for more than a dozen. A velvety softness ought to combine with a richness of colour in the petals, and the larger and more regular the flower the better. If the stamens project beyond the heart it is considered a fault, but they ought to fill the tube well. The foliage should be healthy, well grown, and almost cover the pot. It is very important that all the pips should expand at the same time.



for if some of the pips open long before the others they will have lost their beauty when the later ones are in their prime, and to show a full truss with every pip fresh and lively is a great desideratum. The truss is also improved if one or more leaves grow and stand up behind the bloom, for it assists the

truss, and adds much to the beauty of the whole by forming a background.

Now these several points are founded on good taste, as the illustrations of properties will prove, and in every criticism of a flower where there is no fixed rule applicable, good taste must be the basis of criteria. It is evident that with such a flower as this form is of the first importance, and the regular disposition of the colours comes next; then we come to the character of the tinting, in which we expect agreeable contrast or complemental association of the colours; and, lastly, the truss itself should be a semi-sphere, well mounted on the stem or pedestal.

The usual mode of exhibiting is in "pairs." that is, two specimens of different colours together, and it requires good taste to pair them well. However they may contrast as to colour, they ought to match well as to size, the foliage, size and height of trusses. and general excellence in all respects, for it is offensive to the eve to see a pair composed of one dwarf and one tall plant, or one full of health and vigour and another with scanty foliage. even if in other respects they pair well. In pairing, a greenedged makes a good companion to a white-edged, a dark ground colour should go with a light ground colour, and in no case should any two kinds that nearly resemble each other be put together as a pair. Where judges would be puzzled to decide as to relative excellence of properties between competing flowers, owing to their being of equal merit, they would have to award the prize to the pair of best contrasted colours, but as long as they could detect any evidence of superior culture in any particular specimens, even if not paired so well as other inferior flowers, we should consider them bound to give those the award, for though an exhibitor is bound to group his plants judiciously, skilful cultivation is of higher merit.

CHAPTER III.

"In comes Auricula; arrayed she comes
In splendour, and in liveliest colours blooms."

GENERAL CULTURE AND SEASONAL MANAGEMENT.

Since the Auricula blooms very early in the year, the culture of established plants may be considered to begin in June, when the flowering is over. As we do not require artificial heat in the culture of this flower, and as improper treatment either hurriss it into a sickly growth or promotes its return to its original wild state, the composition of the soil is almost the only condition of success over which we have complete control. and in no case is it more important that the soil should be in every sense adapted to the purpose. Strictly speaking, we have no natural soil suited to the Auricula, hence composts are essential, and the lover of this tribe of beauties must not grudge any necessary trouble in preparing it. The importance of a proper soil has always been felt, for these flowers are easily ruined by small and not very obvious causes, and being very highly bred, are apt to break into varieties, and utterly lose character in two or three generations. This fact has led to a good deal of quackery; the older cultivators especially were very empirical in their modes of management; every grower had his own specific for the preparation of a compost, and which, of course, he considered to be the best in the world; but, as in many other cases, the most enlightened experience is in favour of composts from which all exciting ingredients are excluded, a well-decomposed, sweet, and friable material proving better than any of the powerful nostrums that have been recommended for the purpose. Bear in mind then at starting, that all strong manures are dangerous, and the more dangerous the fresher and the hotter they are in their nature.

There are two methods of mixing composts for Auriculas; one is to make them rather poor, and communicate strength by manure

waterings or top-dressings; the other to make them of sufficient richness, that no further aid will be necessary. Many growers adopt both plans, using the poorest compost for the growth of cuttings and seedlings, and the richer one as a top-dressing or for potting plants at the last shift before blooming. To secure a good compost for all purposes, take one part of flaky cow-dung collected in summer, and store it in a dry shed till it has become caked and chippy. It must be free from worms, and thoroughly sweet. Add to this two parts of rotted turf, equally well cleansed from worms, and half a part of sharp gritty river or washed seasand: pit-sand of any description is worthless. Let this be well mixed and broken, but not sifted, and it will resemble very closely the gatherings of turfy and gritty vegetable mould in which the Auricula grows naturally. Another good compost may be made of well-rotted hotbed-dung, thoroughly dried and sweetened before being used, and then mixed with double its bulk of clean leafmould, or mellow loam from a roadside, or the black, peaty, and nowdery stuff that may be found in very old hedgerows, and which is chiefly made up of many years accumulation of leaves, drifted sand, and rotted wood. Mr. Hogg used to grow Auriculas in a simple compost of sound loam with a little sand, previously worked and turned to pulverize it for a year and a half; and when the plants were strong enough, they had a top-dressing of sheep, deer, or poultry-dung, which were also left for some time after all fermentation had ceased in them, and then mixed with the staple ingredients for a top-dressing.

There is one feature in Auricula-culture which renders these plants especially suited to those who have but little leisure for gardening pursuits, and that is that they do not require such a regular course of shifts as most shrubby plants; and, indeed, the whole art of managing them is one that requires judgment rather than time, discretion rather than labour. To begin, then, with the plants that have just gone out of bloom. These are to be immediately re-potted, and the compost should be used rich or poor according as to whether or not you intend to use manure-water or top-dressings to help them into bloom. The proper sized pots for full-grown plants are those called thirty-twos, which, on the London rule, are five and a half or six inches in diameter; for

suckers and cuttings sixties are best. The pots should be new, or, if previously used, should be well washed and scrubbed, and dried in the open air a few days before being appropriated again. Take your plants to the potting bench, trim off dead leaves and flower-stems, and then prepare the new pots by placing an oyster shell over the hole of each, and over that an inch of crocks, then an inch of the fibry part of the loam, or some chopped moss, and, last of all, another inch of the proper compost.

When you have thus prepared a sufficient number of both large and small pots, proceed to turn out the plants. This must be done with care. Turn them out as complete as possible, shake off the soil from the roots, trim away the suckers with the thumb-nail or with a clean sharp knife, removing a portion of the root with each if possible, sparingly trim the roots of the old plants, and pot each lot as you get them ready, so that they may not be unnecessarily exposed to the air, or the names of the varieties confounded with each other. In planting the old roots, it is best to hold the plant in the left hand in the centre of the new pot, and with the collar rather higher than it is intended to be ultimately: with the other hand fill in with the soil, neatly spreading the roots, and creating no bruises anywhere. When you have filled in to the brim, let go the plant, and give the pot a strike on the bench, which will settle the soil and the plant together to half-an-inch or so below the rim; then fill up to the rim again, and press the surface gently with your fingers, so as once more to bring the soil half-an-inch below the edge of the pot all round, but leaving the plant on a little hillock in the centre, level with the edge of the pot. By this mode of planting there is less danger of water getting to the centre of the plant, which must be guarded against in the culture of the Auricula. Give them a gentle watering from the spout of a small pot, letting not a drop touch the foliage, and set them on a bed of coal-ashes in a shady place, where they will require no further attention beyond watering occasionally in fine weather, and keeping clear of weeds and vermin till October. Some protection should, however, be provided against heavy rains, and the best is a frame of oiled canvas, to be drawn down only during showers. The suckers are to be potted in a similar manner, those

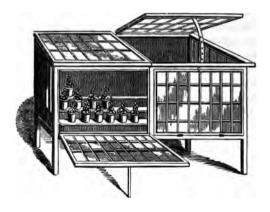
that are without roots had best be put round the sides of fiveinch pots, three or four in a pot, and shifted as soon as they make root singly into small pots, but the rooted suckers, even if they have ever such a fragment of root to begin with, should go into small pots singly, though they occupy less space if potted in the same way as the cuttings.

We now come to the wintering of the plants, and we must impress on the amateur the necessity of growing the plants as hardy as possible, for though in a certain sense Auriculas are tender and delicate things, they are, nevertheless, capable of bearing a very low temperature, and are always very impatient of heat or in-door treatment of any kind. The chief things to attend to during winter are to give as much air as possible at all times, to secure them against damp, whether in the soil of the pots or about the ground where they stand, and, above all things, never to let a drop of water go into the heart of the plant. These little niceties may seem to increase the trouble much, but in reality it is only a little watchful care that is necessary. Water must never be dashed about them promiscuously, and the stock must be inspected at every opportunity, to see that nothing goes amiss.

Now there are several ways of wintering Auriculas, and among them the simple weather-board, described at page 77 of the treatise on the calceolaria, is perhaps as good as any, but a glass frame hung on hinges would be better, and, instead of a bed of coalashes, which does very well, a stage of boards, slightly raised above a dry bottom, would be an improvement, because then you could more easily regulate the amount of moisture about the plants. A still better plan is to set a cucumber frame on a platform of bricks, and then place the plants on a stage, or three inches of coal-ashes, so that their crowns will be not more than six inches from the glass. With this contrivance you can give abundance of air and light, as much or as little water as you please, and you have full security against storms and frost, at least as much as Auriculas require. A cold-pit is, of course, equally available. But the best mode of all is to have a frame constructed expressly for them, on the plan adopted by Dr. Horner, who is a famous grower of this charming flower. Dr. Horner's model frame is

here represented, and his own description of it is as follows:-

"It stands on legs between two and three feet high; the top lights slide, and, as shown in the diagram, may also be propped up by means of an iron bar, perforated with holes two or three inches apart, and which catch on a pin projecting from the wood on which the light rests when down. It is permanently fixed to the sash by means of a small staple, forming a moveable joint, and, when not used, lies along its lower edge, and is there secured. The front lights let down on hinges; the ends are also glass; and in the back, which is wood, there is a door for the convenience



of getting to the pots behind, and also for thorough ventilation. There are five rows of shelves, graduated to the slope of the glass; they have a piece, an inch wide, sawn out of the middle; there is a space also left between them; so that the bottom of the frame is quite open, for abundant admission of air to circulate thoroughly around the sides and bottoms of the pots. By letting down the front light only, the plants may be left, for days together, exposed to all the advantages of light and air, without care or notice; and when it is desirable to give them the benefit of a shower the top lights are removed."

With any moderate shelter and security against damp, there is but little trouble incurred in their winter management. Give air plentifully during mild weather, and water in the morning sparingly when the pots are really dry on the surface, choosing intervals of dry, bright weather for the operation. On really fine days draw the lights off entirely, but close them the instant rain occurs; and if the weather is mild and wet, give air at the back by propping the lights, for if kept close for any length of time, Auriculas become drawn and sickly, and never bloom as they should do. The surface soil should be kept free from moss by occasionally stirring it, and vermin of all kinds must be kept out of the frames, and destroyed as soon as discovered.

With such treatment you need have no losses, and during even the coldest weather the plants will continue to grow, though slowly. hence they should never be allowed to get dust-dry. At the close of February is the proper time to top-dress them, to cause them to bloom strong, and in doing this it is advisable to make a regular clear out and examination of the stock, so as to give the frames an airing, and afford an opportunity of hunting any vermin that may be waking from winter torpor to demolish the new growth that is commencing. For the top-dressing you ought to have some rich compost ready, as already described. The best is formed of equal parts of two-vear-old cow-dung, very rotten leafmould, and light sandy loam. First of all, trim over all the plants, removing decayed leaves, and setting aside any that appear to be unhealthy. Then remove from the surface about an inch and a half of the soil, but with great care not to injure the roots, and replace it with the dressing, so as nearly to fill the pots, pressing it firmly to the stem of each plant, and giving a final watering to settle it. Replace them in the frame and treat as before, but especially giving plenty of air to promote a strong growth. Those that were set aside must be carefully turned out, and the roots examined, when probably it will be found that the roots are cankered, in which case every diseased portion must be cut clean away with a sharp knife, or if you can nip it out with the thumb-nail it will be better than allowing metal to touch it. The cut parts should be dusted with powdered charcoal, and it is a good practice to daub over with the same material the cut

parts of offsets, and the parent roots from which they were taken. The plant must be at once re-potted in poor sandy compost, and placed in a cool, shady place to recover. On this subject we shall have to speak again presently.

The plants that were top-dressed will soon begin to grow vigourously, and as the weather improves they may have additional supplies of water-in fact there must be no starving now, for they bloom so suddenly as soon as the winter is over, that they have little time to gather strength, and hence that little must be made the most of. Towards the middle of March the most forward will show their bloom-trusses, and by the end of the month they will all be in a forward state for flowering. Now give plenty of air on fine days, but be rather more careful as to temperature. indeed promote warmth by covering them with thick mats at night, and during bright weather water freely on the soil only. When they flower let them have shade of some kind and shelter from rain, but unless you are particularly anxious, owing to scarcity of window flowers, to place some in the drawing-room windows, let them all bloom out of doors, for a confined air is at any time very injurious to this freedom-loving, mountain beauty.

When the bloom is over, place them on a bed of coal-ashes, where they will have the morning sun only, and guard them against the attacks of slugs, and the entrance of worms to the pots. From this point the routine commences again, and we have completed a season of ordinary culture.

CHAPTER IV.

Swerr flower! Spring's earliest, loveliest gem!
While other flowers are idly sleeping,
Thou rearest thy purple diadem;
Meekly from thy seclusion peeping.
BOWRING.

HYBRIDIZING AND RAISING SEEDLING AURICULAS.

It is an easy and pretty task to raise a collection of seedling Auriculas, and though out of a large number there will be but few worthy of preservation as show varieties, a great many of average merit and really beautiful colouring may be obtained with moderate care, and the really good ones will be of sufficient value to repay for the raising of the whole. When left to bloom in collections the varieties will get naturally crossed, and new hybrids will be the result of saving and growing the seeds; but it is better in the case of Auriculas to perform artificial impregnations, and this is rather a difficult process, for the anthers are not so easily got at as in most other flowers.

The modus operandi include first bringing the plants together that are destined for marriage, and the one chosen for the mother plant should be selected rather for form than colour, the "daddy" will give the latter quality if well chosen—both should of course be first-rate of their class. Before the pips of the mother-plant are quite open, take a very small pair of sharp-pointed scissors. and cut away the anthers, and immediately cover them with a bell-glass, to prevent any bee settling with pollen of his collecting, and so spoiling your work. As soon as the anthers of the father-plant are mature, remove some of the pollen with a camel's-hair pencil, and brush it over the pistils of the mother-flowers, and immediately replace the bell-glass. This should be repeated on the flowers that are under the process as long as pollen can be obtained from the chosen plants, and the bell-glass should be kept

over every mother-plant until the seed-pods are really set to prevent the access of insects. Some growers trust entirely to nature, placing the chosen plants together, far apart from the general stock; and such are the freaks of nature, that very good hybrids are often obtained in this way; but there is more certainty in artificial impregnation. As the seed-pods swell, the weakest should be cut away, and the strongest only left to arrive at maturity.

When the flower fades, and the seed-pod is swelling, air may be given freely. Cut off the seed-vessels as they become brown, and place them in a dry, sunny place, on a sheet of paper, until they open. When this takes place, the seeds may be sown at once on rich, light soil, under a handlight, or, better still, in a box that may be protected, and easily moved under cover in winter. Some seed however should always be saved to sow in February or March, as in that case the plants are a good size before they encounter the first winter. The seed should never be covered more than the eighth of an inch. On this account it is well to sow in pots, plunging them in a gentle hot-bed, and covering each pot with a square of glass, and shading until the seedlings appear, when light and air must be gradually given. This would secure a more uniform vegetating of the seed. As soon as the seedlings can be easily handled, they should be pricked out into a bed, about five inches apart, supplied with a frame, so as to be wintered there, and many will show bloom the following year, when the good ones may be potted and placed with the Florists' flowers. and the others transferred to the border.

Neither seedlings nor old plants should be allowed to bloom in the autumn, for though they will generally produce a second bloom late in the spring, their autumn blooming reduces their vigour, and as soon as the trusses appear, they should be nipped clean out. When the seedlings show their first spring bloom, mark them all as to colour and quality; get rid of the worst, propagate the best by offsets, and take care of those of average merit to see if they improve at their second blooming, but do not waste time, or patience, on any that are not as good or better than the sorts you already possess. Retrogression in floriculture is not to be tolerated in these days of improvement.

CHAPTER V.

EXHIBITING THE AURICULA.

Some remarks have already been made as to the conditions requisite to success in exhibiting the Auricula. It is only necessary here to add that from the first opening of the flowers they should be shaded from the sun, except only for an hour or two early in the morning. The shade should be removed at night, and the flowers exposed to the night air and dew, which they relish exceedingly, but if there are signs of rain, they must be kept sheltered from it.

In dressing them for exhibition, some little skill is necessary. If the stems of any are too weak to support the blooms, a piece of stiff wire, with a hook at one end to catch the stem, must be thrust into the soil to keep the truss in its proper position; at the same time, however fine the flowers, the necessity of supporting them shews the plant to be defective in strength, and hence not qualified to compete with others of equal merit requiring no support. On this question of artificial supports, however, judges are very lenient; in our opinion much more than they should be.

In trimming the trusses, all weak and ill-placed pips should be entirely removed, so as to reduce the number to from eight to twelve, and those left to bloom should form as nearly as possible a spherical outline, and every pip should have room to expand freely without overlapping or crowding others. There are other manipulations adopted to get the pips into regular order, and to make the petals lay flat and firm, and in precise order all over the truss; but beyond a certain point this sort of dressing is illegitimate and dishonest, the merit consists in growing them so that they conform to rules, not in modelling them afterwards, so that they may assume a virtue if they have it not. Is it not a palpable imposition to impress upon a plant by a trick of legerdemain, qualities which it never possessed naturally—what security has the amateur who buys on the faith of apparent excellence, and then finds that the excellences of the plant were adventitious, and owing entirely to the conjuring skill of the grower?

CHAPTER VI.

PESTS AND DISEASES OF THE AURICULA.

THE green fly is apt to attack the Auricula at blooming time, and the more confined the plants the more vigorous will be the ravages of these pests. It is advisable not to smoke them, but to remove them one by one with a camel's-hair pencil—an operation not difficult with these broad-leaved plants, about which the aphis cannot readily find shelter.

The chief enemy to the grower is canker at the root, the cause of which cannot be precisely stated, though it is pretty generally attendant on a damp state of the soil, and the use of too stimulating a manure. Plants affected with this disease lose their healthy green colour, then the root decays on one side, and sometimes the collar is eaten away, so that the plant falls over on its side, and at last the head is entirely separated from the root, and the plant perishes. Strange to say, when this appears in one or two plants, an inspection of the stock will be pretty sure to reveal its incipient progress in many, intimating a contagious character, yet the general opinion is that it is not contagious at all, but owing simply to improper management of the whole collection.

As prevention is better than cure, the grower should be particular to secure good drainage in the pots, and to avoid the use of a compost, which through being of too fine a texture, would be apt to run into a paste, or form a clayey mass when moderately wetted. The old growers were much more troubled with this disease than we are at the present day, so much so, that whole collections of thousands of plants were sometimes cut off in a single season; and a grower, who by brilliant successes had made a good start on the road to fortune, was suddenly reduced to beggary. The old plan of sifting composts till they were as fine as dust, and the use of such stimulating compounds as blood, night-soil, etc., a slight overdoing of which would be pretty sure to cause the general ruin of a collection, were undoubtedly the

most frequent causes of disaster. Modern practice teaches the use of milder composts, of such a texture as to the presence of fibry and gritty materials, that it is impossible for them to run together, and hence we hear less and less of canker in the Auricula, or of disease in other plants. If the pots are one-fourth filled with rubbly charcoal, and the pebbles not too precisely sifted from the compost, and watering judiciously managed, there will be little to fear of disease of any sort.

The only way of treating affected plants is to turn them out, cut away every part of the root that is affected, and at once re-pot them in sweet, open, and rather poor soil, and then put them in a cool, shady situation till they commence a new and healthy growth. Whenever there is an apparent want of vigour in any of the stock, an inspection of the roots should be immediately made with a view to check this affection in good time.

CHAPTER VII.

THE POLYANTHUS. ALPINE AURICULAS. OUT-DOOR CULTURE.

The Polyanthus is a garden variety of the common primrose; it is, however, very permanent, and shows little disposition to run back to its wild form of *P. vulgaris*. The varieties are many, and, generally speaking, of extreme beauty. It is a more hardy plant than the Auricula, and is not so soon affected by damp as that plant, hence it is much used as a bedding and border flower. As a florists' flower its cultivation is the same in all respects as the Auricula, with the exception that in making composts less sand is necessary, and in general treatment there is no necessity to shelter the foliage from occasional rains; indeed during spring, while the plants are in frames, a gentle syringing over the leaves will be found beneficial if done early in the mornings of fine spring days. We have had them frozen through in the pots for

weeks together, and still flower well on the opening of spring; still it is better to shelter them from very severe weather, and they can be more successfully managed if wintered in cold pits apart from Auriculas. As the properties are judged by different rules, a precise statement of the latter will be all that we need say on the subject.

The characteristics of a good Polvanthus are as follows:—The plant should be healthy; the foliage large and abundant: the stem stout enough to bear the truss well up above the leaves, which should cover the pot, and rise up in the centre; the truss should consist of at least five flowers, and the footstalks of each flower be able to support each bloom level with the rest. Each flower, or pip, should be round and flat, neither inclined to cup nor reflex. The pips should be divided, near the outermost edge. into segments: each division, or segment, should be slightly indented or scolloped in the centre. Each flower should have a vellow centre, or eye; in the centre of that there should appear a tube containing the anthers, but the pistil should not be seen. This yellow centre, including the tube, should be of the same width as the ground or body colour, which colour should either be a rich dark crimson or a bright red. Round this body colour the margin, or lacing, should appear of a uniform width surrounding each petal, and continuing down the centre of each to the yellow eye. The colour of this lacing, or margin, should be uniform, whether it is sulphur, lemon colour, or clear yellow.

For window culture the Alpine sorts are very desirable. They are lovely things, very hardy, and require only to be secured against damp and drought to bloom freely and finely at the cost of but little trouble. As they are not mealy in the foliage, but of a fresh hearty green, they are elegant window plants at all seasons, and are most welcome ornaments to a room in the early spring, when they send up their trusses of rich dark blooms, preserving their beauty for many weeks with little care, and if they get a little dusty they may be cleansed with a sponge dipped in tepid water. Any one may raise them by sowing during summer, from May to August, and potting them off as they require it; but in greenhouse culture, from December to March is the best season for sowing all kinds of Auriculas.

Choice kinds may be propagated by division of the roots in July and August, and if put under glass for a few weeks, will soon make root, but they are apt to fog off if exposed to damp or strong sunlight. Auriculas and Polyanthuses bedded out have a pleasing effect, as they have also on rock-work, especially the Alpine kinds, on account of their lovely foliage. In this mode of growing them the bottom should be well drained by a layer of broken crockery or potsherds, and the plants set out in a generous compost, and with some little protection against the July sun.

CHAPTER VIII.

CULTIVATION OF THE CHINESE PRIMULA.

Or late years the lovely Chinese Primula has become a great favourite as a greenhouse and window ornament in early spring. There is no choice plant more easily grown: a succession from Christmas till nearly Midsummer may be readily insured by a little management as to the temperature, for they take heat kindly. and the earliest supply may be brought on in the warmest part of a house, and others regularly forced to succeed them. There is no better mode of propagation than by seeds. These should be saved from the very finest flowers; and whenever it is intended to save seed, every plant producing inferior blooms should be destroyed the moment its character is ascertained. Those for the earliest bloom should be sown in a gentle heat in spring, pricked out as soon as large enough, and then potted into sixties, and grown in a cold frame during the summer, in a position where they can enjoy the morning sun. They like a moderate amount of moisture, and partial shade from intense sunshine. In autumn the plants should be re-potted into blooming-pots at once; but to make fine specimen plants, the most robust should be shifted regularly till September, and then left to set for blooming. The plants for blooming late in the spring should be raised from seed sown in July and August, and as soon as strong enough, potted off singly, and rendered as hardy as possible, so as to winter well in a cool greenhouse, from which they may be transferred to a summer position as they are required to succeed the earliest. Thoroughly double and finely formed flowers should be kept on from cuttings after flowering in April and May, and a few of the best old plants may be re-potted in spring for a second bloom, but as a rule it is a folly to attempt to preserve old plants of this species of Primula; a succession of young stock is the only safe mode of insuring an annual supply of these delicate and charming flowers.

The soil may be sandy loam and peat, enriched with a little decayed dung; or, if peat is not to be had, a compost of two parts turfy loam, one part leaf-mould, and one part decayed and flakey cow-dung, with sufficient coarse sand and charcoal broken as small as peas, to render the whole light and porous. The winter temperature should not be lower than 40° for those that are intended for late blooming; but the earliest must enjoy a temperature of from 55° to 60° during the day, and not less than 45° or 50° at night. As they bloom long before the sun has any great power, and dwarfiness is essential to their beauty, they should have plenty of light in the house.

LIST OF FIRST-CLASS SHOW AURICULAS,

SELECTED FROM THE STOCK OF MR. C. TURNER, OF THE ROYAL NURSERY, SLOUGH.

GREEN-EDGED.

Apollo, (Beeston.) Badajoz, (Pearson.) Britannia, (Smith.) Conductor, (Headley.) Duke of Wellington, (Dickson.) Eclipse, (Cockup.) Imperator, (Litton.) Jubilee, (Moor.) Lady Ann Wilbraham, (Oliver.) Lady Gardener, (Compton.) Lady Mildmay, (Turner.) Lord Lascelles, (Wood.) Lord Lyndoch, (Lightbody.) Lord Nelson, (Howard.) Lovely Ann, (Oliver.) Prince Albert, (Dickson.) Prince of Wales, (Ashton.) Trafalgar, (Partington.) Sir John Moore. Frontispiece. Venus, (Smith.)

GREY-EDGED.

Complete, (Sykes.)
Conqueror of Europe, (Waterhouse.)
Duke of Cambridge, (Dickson.)
Fair Flora, (Beeston.)
General Bolivar, (Smith.)

Helen, (Wilson.) Lady Jane Grey, (Dixon.)

Lancashire Hero, (Cheetham.)

Mary Ann, (Fletcher.)
Montague, (Mc' Donald.)

Ne Plus Ultra, (Fletcher.)

Perfection, (Bone.)

Privateer, (Grimes.)

Richard Headley, (Lightbody.)

Ringleader, (Kenyon.)

Sophia, (Chapman.)

Squire Chillman, (Willmer.)

Superb, (Headley.)

Surprise, (Buckly)

Unique, (Dickson.)

WHITE-EDGED.

Catharina, (Summerscales.)
Conqueror, (Popplewell.)
Countess of Dunmore, (Lightbody.)
Favourite, (Taylor.)

Glory, (Taylor.)

Lord Chancellor, (Kenyon.)

Pillar of Beauty, (Hughes.) Regular, (Ashworth.)

Robert Burns, (Campbell.)

Smiling Beauty, (Heap.)

True Briton, (Hepworth.)

ALPINE AURICULAS,

SELECTED FROM THE STOCK OF MR. HOLLAND, OF BRADSHAW GARDENS, MIDDLETON, NEAR MANCHESTER.

Captain Fraser.
Conspicua.
Crompton's Oldham Hero.
Fair Rosamond.
Favourite.

Fletcher's Fair Helen. King of the Alps. Queen Victoria. Rising Sun. Willison's Ne Plus Ultra.

SELECTION OF FIRST-CLASS POLYANTHUSES,

FROM THE STOCK OF MR. HOLLAND.

Addis's Kingtisher.
Billington's Beauty of Over.
Brown's Free Bloomer.
Buck's George IV.
Bullock's Lancer.
Clegg's Lord Crew.
Collier's Princess Royal.
Cox's Prince Regent.
Craiggy's Highland Mary.
Craiggy's Queen of the Tyne.
Cronshaw's Exile.
Elliott's Sir Sidney Smith.
Faulkner's Black Prince.
Fillingham's Tantarara.
Fletcher's Defiance.

Gibbon's Royal Sovereign.

Hudson's Rubens.

Hufton's Earl Lincoln.

Lord Rancliffe.

Marquis of Estin.

Maud's Beauty of England.

Nicholson's Gold Lace.

King.

Pearson's Alexander.

Sander's Chesbire Favourite.

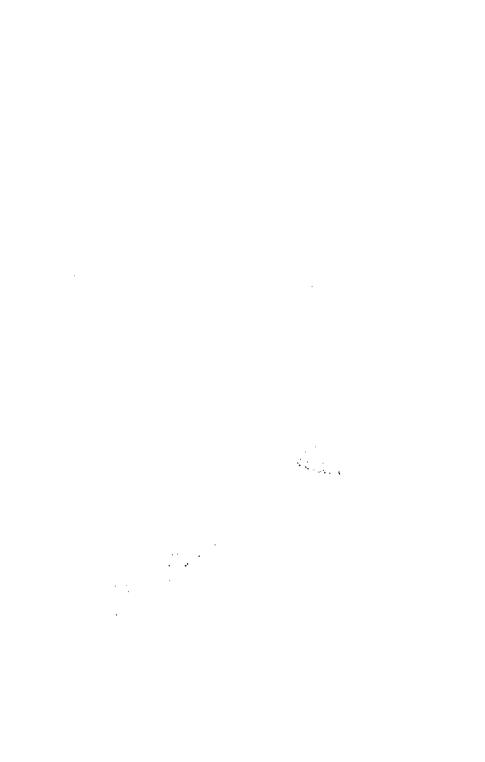
Thomson's Duke of Northumberland.

Timmis's Defiance.

Turner's Emperor Buonaparte,

Willson's Lady Milner.

Wilson's Bucephalus.





France of Prussia.

GARDEN FAVOURITES.

THE

VERBENA, PETUNIA, AND CINERARIA:

THEIR

HISTORY, PROPERTIES, CULTIVATION,
PROPAGATION, AND GENERAL MANAGEMENT
IN ALL SEASONS.

BY SHIRLEY HIBBERD,

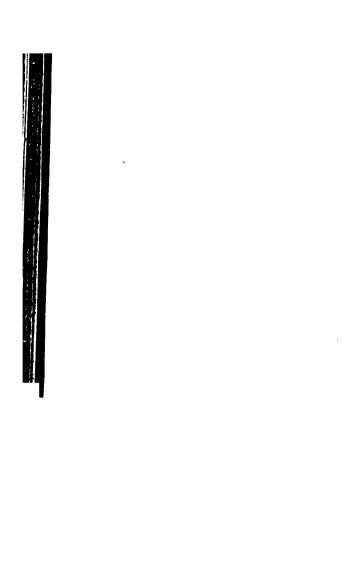
Author of "Rustic Adornments for Homes of Taste." etc.

"The varied colours run, and while they break On the charm'd eye, the exulting florist marks With secret pride the wonder of his hand.

Infinite numbers, delicacies, smells, With hues on hues expression cannot paint, The breath of nature, and her endless bloom."

LONDON:

GROOMBRIDGE AND SONS, 5, PATERNOSTER ROW.



THE VERBENA, PETUNIA, AND CINERARIA.

CHAPTER I.

"Who shall say that flowers
Dress not heaven's own bowers?
Who its love, without them, can fancy,—or sweet floor?
Who shall even dare
To say we sprung not there,
And came not down that Love might bring one piece of heav'n the more?
Oh! pray believe that angels,
From those blue dominions,
Brought us in their white laps down, 'twixt their golden pinions."

Leigh Hunt.

The three subjects to be comprised in this treatise have no very attractive historical associations. It is true the Verbena carries the mind back to the time of the Druids, when the Vervain—the Verbena of our own British fields—was a sacred flower. They are exotics of somewhat recent introduction, and have not yet been woven into poetic lays, or consecrated to any special service by the muses. All that they have to recommend them is their exquisite beauty, and especially as to colour, and this indeed is quite enough, for what is a modern geometric garden without a display of Verbenas and Petunias? At this very moment, while

March winds are howling, and the young spring is still in the grasp of winter, every moment threatened with extinction. the florist is all alive about bedding effects, little mites of plants are being potted off in hundreds, and cuttings of all kinds taken by thousands, to be struck in a moist heat, to increase stock for the summer display; and it will not be long before the beds will blaze again in hues of sunsets and prairies on fire; and auroras, rainbows, and gold fields will display themselves in the summer sunshine. in bold vindication of the bedding system, which, strange to say, still has its enemies among earnest worshippers of Flora. I do not purpose here to enter into any disquisition on the moot question of the old border versus bedding plants; it is quite certain that without Verbenas, at least, say what you may against Petunias, the chief glory of that kind of display would be wanting, for the Verbena is the perfection of a bedding plant as to habit and mode of inflorescence, and it produces such a diversity of colours as in itself to be sufficient for the production of a complete system of grouping on a limited scale. As to the Cineraria, look at its ample trusses of fulgid stars at this season, and for ever after prize it as the best of all spring flowers.

Taking the Verbena first as the most important of this bright trio, we find three distinct classes in the arrangement of species, and of these two classes are hardy plants of little floricultural merit. There are about a dozen species of hardy annual Verbenas, natives of North America, Mexico, and Peru, the prettiest of them being V. aubletia, introduced in 1774, and V. elegans, introduced in 1826. The hardy herbaceous species number about a dozen more, with a few varieties, and among these Drummond's V. aubletia, with lilac blossoms, is undoubtedly the best; but V. Lamberti, V. L. rosea, and V. multifida alba are not to be treated with contempt. The florists' varieties come from the greenhouse herbaceous section, of which there are nearly twenty species, and no end of improved hybrid varieties. The oldest of these is V. diffusa, introduced from North America in 1818; it is a pretty blue flower, and the habit spreading. In 1827, V. chamædrifolia, the germander-leaved Verbena, came from Buenos Ayres, and this gave us the first of the scarlets; but in 1834 it was beaten by Tweediana, named after Mr. Tweedie, a botanical collector, in

whose honour also a group of Asclepiad greenhouse twiners bears the name of Tweedia. The other leading species in this important section are V. amana, 1828, pinkish purple; pulchella, purple, 1827; teucioides, purplish, 1837; and venusa, rosy, from Buenos Ayres, 1830. The pretty V. officinalis may be taken as the representative of the Verbena on British ground. This is the Vervain of antiquity, so frequently referred to by the classic poets in their descriptions of mythological rites and social usages. Indeed the Romans applied the name Verbenæ to all herbs used in sacrifices and the decking of altars, and every god had his peculiar herb in which he was supposed to find special delight. classes all sacred leaves, such as laurel, olive, myrtle, and rosemary as Verbenæ, and Suetonius uses the term Verbenatus as descriptive of the crowned and garlanded condition of sacrificing priests and officiating priestesses, the Vervain being one of the most important of the mystic plants used in the pagan ceremonies.

In Virgil's twelfth book, where Æneas challenges Turnus to combat, the Vervain is distinctly mentioned as being used in the priestly garlands when the grassy alters are raised in preparing the lists for the encounter.—

"Beneath the walls they measure out the space; Where with religious rites their common gods they place. In purest white, the priests their heads attire, And living waters bear, and holy fire, And o'er their linen hoods and shaded hair, Long twisted wreaths of sacred Vervain wear."

With the Druids it was nearly as important as the mistletoe, and was gathered with very solemn rites at the rising of the dogstar, when neither sun nor moon looked upon it. Before digging it up, libations of honey were poured forth, and the priest dare use only his left hand in removing it from the ground. It was then waved aloft, and the leaves, stalk, and root dried separately in the shade. It is described in the Druidical writings as "cheerful placid Vervain, which has been borne aloft, and kept apart from the moon." It was then precious as an amulet, as a charm against evil spirits, and was used in love potions, and to conciliate friendships, besides being esteemed as a remedy for many virulent

diseases. Here are some verses commemorative of the virtues of Vervain, but I know not who is their author.—

"There are fairer flowers that bloom on the lea,
And give out their fragrant scent to the gale;
But the Vervain, with charmed leaf, shall be
The plant of our choosing, though scentiess and pale.

For, wrapped in the veil of thy lowly flower, They say that a powerful influence dwells, And that duly cull'd in the star-bright hour, Thou bindest the heart by thy powerful spells.

We will plant thee beneath our sheltering tree; In our bower we will bid thy blossoms unfold; So faithful and firm may our friendships be, So never may glowing hearts grow cold."

In their botanical characteristics the Verbena, Petunia, and Cineraria are widely sundered. The Verbena belongs to the natural order Verbenaeea, and in this order its associates are Aloysia, the lemon-scented Verbena; the Lantana, and the Teak, which has long been famous as ship-timber in the East. It belongs to the Linnean class Didynamia, having four stamens, of which two are longer than the other two, and the second order Angiosperma, the seeds contained in a capsule.

The first Petunia introduced into this country was P. nyctaginiflora, having a white blossom resembling the Marvel of Peru. It was brought from South America in 1823. This was followed in 1827 by P. acuminata, also white; but little notice was taken of them till 1831, when P. phanicea and P. violacea were introduced from Buenos Ayres. A little sensation was created when P. phanicea first displayed its lovely flowers, but they did not find their way out of the hands of plant collectors into those of the florists until the two had been crossed, and hybrids had been obtained, when as a florists' flower the Petunia took a high place, and has ever since continued to increase in beauty and popularity.

The Petunia takes its name from *Petun*, the Brazilian name for tobacco, and to the tobacco order of plants it is closely allied; indeed it is a member of the natural order *Solanaceæ*, in which are grouped the tobacco, potato, nightshade, the pretty salpiglossis,

henbane, stramonium, and numerous other garden and greenhouse flowers. In the Linnean system it belongs to *Pentandria monogynia*, having five stamens and one style.

Of the Cineraria but little need be said, for it is a member of the large natural order of composite flowers, respecting which many remarks have already been made in the treatises on the Chrysanthemum and Dahlia. The Cineraria takes its name from cineres-ashes, in reference to the grey down on the under surfaces of the leaves. The species are very numerous, at least eighty being known to cultivators, and of these there are few that are not really beautiful. Among the hardy kinds we have the showy speciosa from Siberia, and the maritima, or sea ragwort; but the greenhouse evergreen kinds are those which claim the tender cares of the florist; most of the hybrid show varieties being the offspring of malvæfolia, lanata, and populifolia, natives of the Azores and Canary Islands, introduced to this country in 1777 and 1780. The intensely vivid colours and bold trusses of the Cineraria, give it a high place among true florists' flowers; and for dazzling crimsons, blues, browns, and intermediate shades of lilac, puce, and white, a stage of well-bloomed specimens is scarcely to be equalled in the whole range of our floral lists. Their early blooming and comparative hardiness are additional recommendations; and for in-door decoration in spring, the Cineraria is altogether unsurpassed.

CHAPTER II.

VERBENA CULTURE, PROPAGATION, AND SEASONAL MANAGEMENT.

THE only real difficulty in Verbena culture is in wintering the stock, and to get over this difficulty requires considerable experience, the lot of the amateur but too often being to see the whole of his plants perish towards February, spite of every care that may have been taken with them. One advantage of such trials and experiences is that it enables one to be useful to others, and the best teacher is he who has acquired his own knowledge under difficulties.

The Verbena may be propagated during any week or day throughout the year, best of all in autumn and spring, and worst of all during December and January. Spring propagation may be said to begin in February and continue till May, but for bedding purposes the plants are best struck in February and March. potted into small pots as soon as possible, stopped as they progress, to make them bushy, and hardened off in good time for transferring to beds and borders at the end of May. To strike cuttings the first thing necessary is to prepare a light compost of one part peat, one part leaf-mould, and one part loam, with plenty of sand, and potsherds broken almost to dust. Use five-inch pots. with plenty of drainage. The plants to be cut from ought to be throwing out plenty of young plump side-shoots, and should enjoy a comfortable temperature to promote their growth. The smallest cuttings make the best plants, and every cutting should be taken off clean under a joint, from which joint the leaves must be removed, and insert these cuttings close together, all over the pot, the outside lot to touch the inside of the pot all round. soil in the pots ought to be only moderately moist, and there is additional safety against damping, if before inserting the cuttings, the compost is covered with an inch of pure silver-sand. In peat and sand only they root quickly, but require immediate shifting into a more nourishing soil.

When the pots are filled with cuttings, dip a hard brush in water, and holding it beside the pot, draw the hand across it

briskly, so as to dew the cuttings, and then plunge the pots into a moderate heat, either in a dung pit, a Waltonian case, or in a propagating house. Old tan is a capital plunging medium, but the heat from half-exhausted dung is undoubtedly the best of all for soft-wooded plants; keep them close for a week, then give air by degrees, but still protect them from sunshine, and whenever the sand gets dry on the surface, water with the finest rose you have. and dew the tops of the cuttings occasionally of a morning to prevent them flagging, but be very careful not to keep them too damp, or you may lose many. In a month, or six weeks at most, you ought to be able to not off the greater part into thumbs. and when this takes place it is best to give them a good start with moderate heat, for the Verbena does not readily take hold of new soil when shifted in its early growth. Keep them shaded at first, and with sufficient bottom heat to enable them to bear being pretty moist; give air after a week, and increase it by degrees, and after ten or twelve days, let them enjoy full daylight and a little sun, and then give plenty of air to induce robustness of habit. If for pot-culture they should be shifted into sixties as soon as their roots touch the sides of the thumbs, and be severely stopped to induce a bushy growth; and in stopping every point of a shoot nipped off will make a plant as before. The greatest care should be taken to keep every lot of cuttings correctly tallied, or vexatious mistakes are sure to happen afterwards.

Let us now suppose you have propagated successfully, and you may continue to do so as long as you require plants, even till June, for blooming the same season. Before bedding out, the plants should be well hardened and receive no checks, because the sooner they begin to set for bloom the better. In bedding let them have a fresh soil if possible, but not a rich one; a strong loam mixed with plenty of river-sand is undoubtedly the best. If heavily manured the plants grow too strong to bloom well, and yet in an impoverished soil they cut a rather poor figure, so that it is best either to change the beds every year, or freshen them with an annual dressing of rotted turf, or virgin soil from a common.

If pegged out every joint makes a root, and this promotes the flowering and the production of shoots for succession; but this very rooting habit of the Verbena leads many a novice astray,

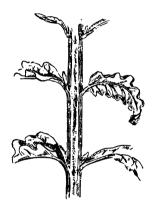
for when October is dawning the old plants are taken up, the rooted runners are separated and potted to keep over winter, and by the end of the season there is an astonishing number of plants obtained without any trouble at all; in fact, as easily as you would get a lot of rooted strawberry runners. But these seldom survive; they live till Christmas, and then rot from the bottom, or drop over and refuse to be comforted.

If you want to propagate the Verbena strawberry-fashion, you must begin early. Put a stone on a joint near the point of a shoot, and at the same time nip out the flower-buds from that shoot, to induce the two side-buds next it to push. In a fortnight that joint will have made a good root. Sever the stem, and pot it into the smallest-sized pot, using a little peat for it to make its first fresh roots in. In this way you may secure an immense number of plants from a bed or border, and they ought to be all potted off and plunged into a cold frame by the middle of August, or early in September at the latest. Not one should be allowed to flower, and as fast as the bloom-buds are nipped out the side-buds will push, and the plants will become bushy. Now from this stock you may take cuttings to strike in heat, up to the beginning of October, and after that time none but adepts should attempt to propagate Verbenas.

Another good plan which combines with it a scheme for wintering, is to make up a bed of peat in a cold pit, and in this bed to plant the rooted runners in rows rather close together, not later than the middle of September. They will soon make fresh roots, and may be wintered there if frost can be kept out effectually; but I must confess that where there are no means of giving such a pit the heat of a flue during severe weather, the safety of Verbenas is very questionable.

Another mode of propagating, and one especially applicable to new and expensive sorts, whether in pots or bedded out, is to fill a lot of thumb pots with a peaty compost, and to place these around the plants, so that the point of a shoot can be pegged down into each, or fixed by means of a stone, so that one of the joints near the end of the shoot is firmly pressed to the soil; that joint to have its pair of leaves removed. If these pots are kept moist the joints will throw out roots, and may then be cut

off from the parent plant, moulded over to cover the joint, the flower-buds picked out as fast as they appear, and the pots kept a little shaded till the plants are established in them. When Brilliant de Vaise first came out, I propagated from one plant about thirty in this way, and still kept plenty of bloom on the parent; and the young plants furnished cuttings again and again, so that by the following May I remember to have had a stock of a hundred and twenty, and if double that number had been wanted, I could have had them by continued stopping and striking the joints. Indeed if a sort is valuable, the cuttings may be split



Verbena stem split in half, lengthwise.

in two, so as to keep a joint on each side of the split stem, and it is even possible to obtain plants from a leaf only, with the bud as its base; but it is a method too troublesome to be profitable.

Autumn-struck plants are far the best for bedding out early in the summer, and if well managed all through the winter, will supply an abundance of cuttings for propagation in spring. As a rule old plants are worthless, and when taken from the beds in autumn, it is as well to throw them on the rubbish heap. But if the sorts are valuable, old plants may be kept over winter just as you would keep calceolarias and petunias, to furnish spring cuttings. This rule however admits of exceptions, as I have had

excellent beds formed of old plants only, and in the second year they bloom early and free; but for pot-culture and exhibition purposes young stuff must be used.

To winter Verbenas safely there is a necessity for a moderate amount of artificial heat, and the best of ordinary methods is a pit heated by a flue. The principal cause of failure with amateurs is in attempting to winter them with geraniums and hard-wooded plants, which are allowed to get very dry, so as to withstand a low temperature: whereas the Verbena, instead of being allowed to sink into so complete a repose as geraniums will do, is sure to perish unless kept growing all the winter through, and dryness is as fatal to it as frost. Even if wintered in a turf pit without any means of heat as I have done many a time, they must never be allowed to go quite dry, for unless the root-action is continuous they sink and are soon past recovery. For this reason it is essential to have them potted in the autumn, so as to get them to make fresh roots before the season is over, and the more old wood there is about them, the less likely are they to make fresh root when finally potted off. If struck from runners, and rather bushy before being stored away for the winter, it is best to cut them over to promote the growth of the young lower shoots, and with a collection of any value, those that shew signs of damping should have their green tops cut off at once, and these tops should be struck in rather a brisk heat as preferable to losing them altogether, for the tops will often keep green for a week or two after the root has been utterly dead; and if seized before it is too late, these green tops may be struck, and a new strength imparted to them by the formation of fresh roots from the young joints. The principal enemy in winter is mildew, and against this sulphur is a specific, and ventilation a preventive. No damp should be allowed about the plants, and though the soil should never be dry, the other extreme of slopping water about them carelessly. or leaving wet about the stages or on the floor of a pit, must be guarded against. In spring, when young cuttings are struck in a moist heat, green fly is pretty sure to visit them, and fumigating may be necessary. Never be rash in fumigating newly-struck Verbenas, two moderate smokings are better than one, and the smoke should be delivered as cool as possible.

CHAPTER III.

CULTURE OF SERDLING VERBENAS.

To raise Verbenas from seed is as easy a matter as raising any other ordinary greenhouse plant, but to get the seed is certainly not a light task. Some seed freely, others want a vast deal of coaxing, and of the new hybrids it is a most difficult matter to get even one ripe pod. But seeds are got, and new sorts raised in immense numbers every year, and for the information of those who may care to try their hands at the pretty task, a few hints will be quite in place here. The first difficulty as to getting seed is owing to the vigour with which the plants sprout and bloom all the summer long, if in a moderately rich soil and well supplied with water. If the grower is determined to have seed from a shy variety, the best way will be to secure autumn-struck plants: get them into five-inch pots by the first week in April, using a poor sandy compost, mixed with potsherds, on the starving principle. They should not be stopped at this potting, but be encouraged to push into bloom, and as soon as one or two runners take the lead, cut away the rest, and give only sufficient water to keep the plants in health, but not to promote a luxuriant growth. Keep them poor but hearty, with plenty of air, and as soon as the weather permits, plunge the pots in a border of coal-ashes exposed to the south, so as to bloom in a full flood of sunshine. By permitting very few heads of bloom, and thinning these out as soon as the trusses are large enough to enable you to use a small pair of scissors to them, and at the same time keeping the plants as dry as possible, so as not to let them flag all the while the blooms are setting, you will have the best chance of seed, and the object of getting them forward early is that you may have a double chance of its ripening; if the first trusses do not seed, the next may, and the more you can prolong the season the more likely are you to meet with your reward. As a rule, seed gathered from any of the florists' varieties will be pretty sure to produce new

sorts without artificial crossing; but where a definite object is sought, a precise mode of action is necessary, and the chief point in this precise mode is to effect an actual cross of two chosen kinds by artificial impregnation. The mother plant must be kept out of reach of bees, flies, etc., which might bring pollen to it from other Verbenas. Before it opens bloom, the trusses should be thinned severely, or you will not have room to operate, for the trick is a delicate one.

Just as the flower-buds shew colour, and are within a day of opening, take a long thin pin, such as ladies call a "lace pin," and with this split up the tube from the bottom, but without







Pod not opened.

Pod split up with a nin.

injuring the style. When the tube is thus opened you can remove the four anthers by means of a pair of tweezers, or with your finger and thumb if you are clever enough.

The plants should be kept rather close and shaded till the stigma begins to look varnished, when it is ripe enough to receive the chosen pollen, which should be taken from a flower just in its prime, and dusted on it. Every style so dusted should have a second dose to "make sure," because in the first application it may not take. When once the pods have set, remove all other blooms, and expose the plants to sunshine, to insure a perfect ripening of the seed. The result is altogether a lottery, but if the lottery is fairly worked, there is a bona fide chance of a prize, spite of the certainty of many blanks. The prize is worth aiming at, and for those who have time and patience, the Verbena is a good subject, because new varieties possessing qualities of real excellence are always in demand, and a man who has added but one new and good flower to our collections, has not lived in vain.

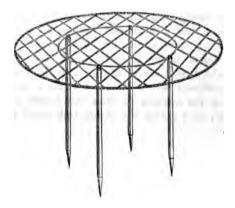
To grow the seed is simple enough. If you have saved a goodly pinch, divide it, and sow a part as soon as you get it, saving the remainder till spring. Sow in pans in powdery peat and sandy loam, and give a gentle bottom heat. When the plants are large enough, prick them out in a similar compost, and as soon as they have made a little progress get them into thumbs, and thereafter treat them as you would a lot of cuttings. spring the time for sowing is from February to April, and as soon as the weather admits, they should be turned out into an experimental border to test their merits, and as a matter of course many will be worthy of annihilation-some will be worth keeping; and who knows, half a dozen may turn up for which Turner or Henderson, or any other spirited grower would gladly give you fifty pounds. It should always be remembered that to amateurs we are indebted for nine-tenths of the best flowers we possess: nurserymen purchase the stock, and send them out in their own names; but in the majority of cases the raisers are non-professional growers, who pursue the chosen task much more for love than money.

CHAPTER IV.

CULTURE OF SPECIMEN PLANTS. EXHIBITION AND PROPERTIES OF SHOW VERBENAS.

To secure fine pot-plants, choose bushy specimens from autumn struck cuttings; get these into shallow eight-inch pots, in a compost of very old dung one part, peat one part, and turfy loam two parts, with a moderate addition of sand. Promote a dense regular growth, and do not allow a single truss to open till the plant is regularly furnished, so as to bloom all over uniformly. Handsome specimens cannot be formed by tying out to sticks, but for cut flowers they may do very well in such a way. If sticks are used they should be cut short, and set all round the pot, to tie the shoots out to regularly, so as to form a dense bush.

But the best mode of exhibiting the Verbena in pots, is to use a wire trellis of fifteen inches diameter, furnished with four legs of seven or eight inches long; the meshes of the table-trellis to be one inch and a half, to allow the shoots to come through to train regularly over this, and stop as often as may be necessary to fill the trellis all over regularly, and hide it completely; and the grand point is to have this trellis covered with an unbroken mass of bloom by the day of exhibition, previous to which not

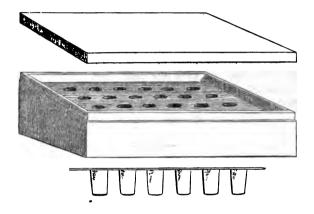


one single truss should be allowed to exhaust the energies of the plant, or check the process of filling up. The trusses ought to be formed three weeks before the day of the show, and the plants then kept back slightly by moderate shading from the sun in a cold pit; but to make sure it is advisable to have a few duplicates of each sort intended for exhibition, and to keep one or two of these a little less forward, by stopping to within three weeks of the time. They form a splendid feature at exhibitions, when shown in pots on trellises.

The schedules of shows vary considerably as to the rule for showing cut Verbenas, some require three or more trusses of a kind, others only allow one; and a little reflection will convince any honest exhibitor of this flower, that single trusses are those

only which admit of the flower being fairly judged. It is one thing to make a display of boquets, another to show a flower so that its good and bad points are open to fair inspection; and to show the Verbena in single trusses, is to put it to a test such as the ardent cultivator will gladly encounter.

To exhibit cut blooms a proper box is necessary. It should be strongly made of plain deal; and the size for twenty-four blooms should be twenty inches long, twelve inches wide, and five inches deep. It should have a lid to fit tight, and without hinges, so



as to lift off and on. Inside the box there must be a rim all round, an inch and a half below the top edge, and on this must rest a sheet of zinc, with four rows of six holes cut in it, and under each hole a small zinc tube must be firmly soldered. The tubes are to be filled with water, the stalks of the trusses placed in them, the lid shut down, and all will go safe from Land's End to John O'Groats, or any less distance that may be necessary. The best time to cut the blooms is at day-break on the day of exhibition, or after sunset the night before.

The properties of a good Verbena are in our view as follows:— The truss should be bold and nearly flat, and the pips should be regularly disposed all over it, so as to touch each other and completely hide the inside of the truss, and it ought to be in bloom all over when at its best; if the outside pips fall before those in the centre open it is a defect, but there is no Verbena vet in existence that can be said to open simultaneously from the centre to the circumference. The pips should be round, flat, and symmetrical; and the petals firm and regular, with a smooth edge and good substance, and the colour decided and dense. The eve should be clear and distinct, as in the charming old Robinson's Defiance, or the levely new Souvenir d'Exposition. In a bed the distinctness of the eye is a great enhancement, still more so with pot-plants, where each individual flower comes in for a close inspection. With all its splendour as to colour and size, Mrs. Woodroffe has a poor eye, and beside Defiance or King of Scarlets. which has a lovely lemon-coloured eye, looks very poor. A white Verbena is generally enhanced in its beauty if it has a dark or rosy eve, as in Mariette. In habit the plant should be dwarf, and the foliage small, the bloom should be abundant and the trusses well supported so as to suffer little during heavy rains.

CHAPTER V.

BEDDING VERBENAS.

I can only find room for half-a-dozen words on this subject, and the first is one of advice to those who speculate on new Verbenas, not to be in haste to bed them. Choice new sorts should be kept in pots, and a few cuttings taken off early, to put into an experimental border, where their habit may be tested; for to succeed as a bedder a Verbena must not only be brilliantly coloured but lasting, free in growth, able to withstand some amount of drought, and all the blaze of a summer sun; and it ought to spread neatly and grow close. Brilliant de Vaise and Geant des Batailles are to my fancy the perfection of models in the way of bedding Verbenas.

Next, in bedding have the plants pretty well hardened, their size is of little consequence, for if they are put out as early as the weather permits they grow rapidly, but of course well-grown plants make the quickest effect, and for such a little more must be paid than three shillings a dozen; at which many nurserymen advertise them.

Lastly, use fresh soil in preference to rich composts, which are apt to cause a coarse growth, to the prejudice of the blooming. A sound loam is the best, and during dry weather the beds should be plentifully watered. Mixtures of colours in beds are seldom used except by the uninitiated; it is not the best way of displaying Verbenas. Scarlets edged with variegated Alyssum look charming; so do whites with Lobelia ramosoides, and blues and purples with Musk, (a bad bedder;) or Sanvitalia procumbens. Those who like to blend the tints of Verbenas, may produce a beautiful effect by placing them in borders in rows of three, the strongest at the back, and then allowing the runners to mix each way; if the colours are well contrasted, so as to give three shades that mix well, with a suitable edging, the effect is charming.

SELECT LIST OF TWENTY VERBENAS.

ESPECIALLY SUITED FOR POT-CULTURE.

Alba Magna, (Smith.) A first-rate white.

Annie Laurie, (Edmonds.) Rosy purple, white centre, large pips, and a free grower.

Attraction, (Edmonds.) Ruby crimson, lemon eye.

Countess of Oxford, (Bragg.) Lavender, or silver grey, white eye; fine.

Criterion, (Weatherill.) Self rosy pink; excellent habit.

Dr. Maclean, (Edmonds.) Rosy purple, large white eye; good habit.
Duchess of Northumberland, (Barker.) Pinky peach, very dwarf, suitable for any purpose.

Etoile de Venus, (Leon Lille.) Delicate blush, rosy purple centre; habit spreading.

Evening Star, (Edmonds.) Carmine, yellow eye; free bloomer.

Geant des Batailles. Deep crimson, dark centre; superb.

Moonlight, (Bragg.) Pure white, the best white for pot-culture.

Mrs. D. Tyson. White, with crimson eye.

Mrs. Holford. Waxy white; the finest of its class out.

Orb of Day, (Hovey.) Deep scarlet, erect habit, large truss.

Pre-eminent, (Edmonds.) Ruby red, large pure white eye.

Purple King, (Reeves.) Bluish purple, splendid.

Rosy Gem. (Edmonds.) Deep rose, very brilliant; a great acquisition.

Scarlet Gem, (Weatherill.) Dazzling orange scarlet, with crimson eye; of the highest merit.

Standard Bearer, (Edmonds.) Rich blue purple, white centre.

Wonderful, (Edmonds.) Rich plum, white centre; fit for any purpose.

SELECTION OF VERBENAS FOR BEDDING.

ARBANGED IN COLOURS.

WHITE.—Bride, Mont Blanc, Mrs. Holford, Mrs. H. Williams, and White Perfection.

LILAC AND BLUE.—Blue Bonnet, General Bosquet, (these two are the nearest to blue yet obtained,) Standard Bearer, and Victory.

- PURPLE AND MULBERRY.—Duke of Cambridge, Emma, Field Marshal, Imperialis, King of Naples, and Wonderful.
- CRIMSON AND PINK.—Attraction, Brilliant de Vaise, Crimson Perfection, Geant des Batailles, Gloire de France, King of Sardinia, Loveliness, Madame Plantamour, and Œil Brilliant.
- SCARLET.—Boule de Feu, Defiance, Emperor of Scarlets, Gloire de Saint Etienne, Inglefield Scarlet, King of Scarlets, Lord Ragian, Miss Trotter, Satellite, and Scarlet Gem.

TWELVE NEW VERBENAS OF FIRST-RATE EXCELLENCE.

Angelica Kaufman, (Banks.) Very distinct grey, with dark centre; quite a novelty.

Dazzle, (Evans.)—Orange scarlet, large clear yellow eye; first-rate bedder. Lady Albinia Foster, (Breeze.)—Cerise rose, yellow eye, surrounded with dark crimson; a fine show variety.

Lady Palmerston, (Banks.)—Salmon pink, red marking round a yellow eye.

Lady Turner, (Breeze.)—Salmon pink, large yellow eye; proves the best of its colour for garden purposes.

Madame Loudier. Crimson scarlet, rose stripe; novel.

Marmion, (Breeze.)—Deep velvety maroon crimson, large light eye; quite an acquisition.

Mrs. A. Mildmay, (Breeze.)—Bright clear rose, dark shade in the centre, straw-coloured eye; a lovely bedder.

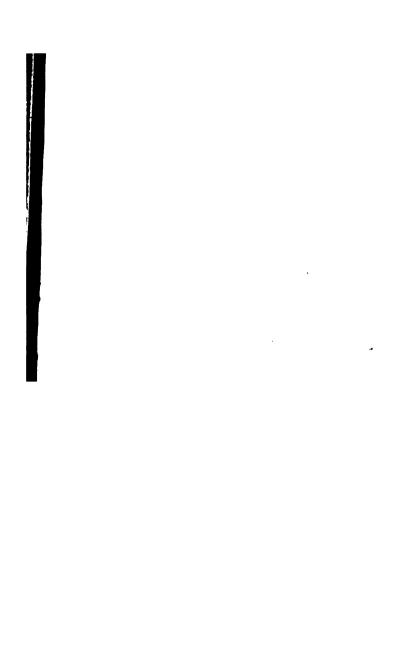
Prince of Prussia, (Breeze.)—Pure self-coloured violet plum; splendid for bedding. (Frontispiece.)

Queen of Oude, (Breeze.)—The darkest violet plum, velvety, large white eye.

Reine des Panaches.—White-striped violet: striking.

Souvenir de l'Exposition.—Blush pink, crimson eye; one of the most splendid of the new varieties, and a capital bedder.

. Many of those entered for bedding are also well suited for pot-culture, and vice versa; but the inexperienced cultivator may safely select in accordance with the lists, exercising his own taste as to colours, and it will be impossible then for any mistake to occur, as there is not one flower entered which has not been proved to possess the qualities assigned to it; this particularly applies to the list of bedders.





THE PETUNIA.

CHAPTER I.

CHARACTERISTICS AND PROPERTIES OF FLORISTS' VARIETIES.

THE Petunia is certainly a valuable bedder, but as a pot-plant the poverty of its foliage is a great drawback; to be sure we have some pretty Petunias with variegated leaves, but as far as we have got with them, at present they can hardly claim to be classed with the "foliaged plants," that are now becoming so deservedly fashionable. As a bedder, however, the Petunia has legitimate uses; and as a florists' flower it is not altogether unworthy of high culture. One great recommendation of the Petunia is that it is an easy subject to manage, and a stock of autumn-struck cuttings may be very safely wintered in a dry pit, if not allowed to sink below 38°: the slightest touch of frost

"settles it" quickly, and damp is one of its most inveterate enemies.

As a subject for seedling culture the Petunia is very promising, and now that we have a race of double flowers the field of operations is vastly enlarged. Indeed there are few things that sport more readily; and with the Petunia there is a tendency to the production of monstrosities, indeed green-edged flowers of good or bad shape may be expected from almost every packet of seed.

Among novelties the double white Petunia, Imperialis, still keeps its place as a splendid plant for pot-culture, though altogether a failure for bedding, as the miserable specimens on the rose-mound at Sydenham last year might have convinced the most enthusiastic. There has been a good deal said both for and against this Petunia, but having grown a large stock for two successive seasons, I can honestly testify of its excellence as first-rate for greenhouse decoration. The flowers are large and waxy, and famous things for cutting; and, as to growth, it is as free as a pansy, and comes as quickly and surely by cuttings. The most curious part of the story is that it has actually seeded, and will turn out to be useful as a breeder, so that we none of us know what the future may have in store for us in the Petunia way.

This present season (1858) double Petunias will be fashionable; Boucharlet, of Lyons, sends out a round dozen of all colours; one, Dr. Lindley, he describes as two inches in diameter, calyx like a datura, carmine, shaded to lake; and another, Napoleon III., three inches and a half in diameter, dark violet, striped white and lilac, shaded blue and slate. Messrs. Henderson, of the Wellington Nursery, also send out a collection of five, raised by Mr. Grieves, namely, General Havelock, Antigone, Hesperis, Red Cross Banner, and Maid of Kildare. Among the double Petunias imported from the continent this season, the most promising are Azora, lilac and white, with reflexed petals; Erlinde, lilac, exquisite form; Iphigenia, greenish, richly scented; and Schmuch des Ilmthales, light purple, shaded with carmine and satin lustre, carnation scented. These last are imported by Mr. F. Winstanley, of Manchester.

In judging the Petunia as a show-flower the following are the leading points:—The flower should be round, without notches on the edge, and it should be rather inclined to cup, that is, the outer edges should not bend back. The petals should be stout, and able to keep the form nearly as long as the colour lasts perfect. When a self, it should be clear without fading at the edges; when striped, each stripe should be well-defined, and each colour distinct. Each flower should be at least one and a half to two inches across; if large they are liable to bend back. The plant should be rather dwarf, and produce flowers abundantly; the foliage should be rather small, in order that every flower may be seen distinctly.

CHAPTER II.

SEASONAL MANAGEMENT. PROPAGATION AND CULTURE OF SPECIMEN PLANTS.

The best soil for the Petunia, when grown as a pot-plant, is a compost of a light, rich, open character, and to make a heap for the purpose proceed as follows:—Get some turf from an upland pasture, lay it up and turn it over for a year at least, then add to it an equal quantity of sweet leaf-mould and peat-earth from a dry moor, with a liberal addition of river or silver-sand. This is the perfection of a compost, and will do for many other softwooded plants besides Petunias. If it is not within your means to make such a compost, and to wait a year for its preparation, take crumbly peat, yellow loam, leaf-mould, and very rotten cowdung and silver-sand in equal quantities, mix them well, and in potting add a few pieces of charcoal to keep the soil open.

It is always necessary for a flower-grower to remember well what is the constitution of every plant on which he may bestow his care. Now, it must be borne in mind that the Petunia has a delicate root, which soon rots in undue moisture; its foliage is incapable of bearing long-continued exposure to dry winds and sun, and hence a medium sort of treatment is neces-

sary. This involves small pots, very moderate watering, occasional shade during the fiercest of summer-heat, and efficient drainage of the roots at all times.

The propagation of the Petunia is conducted in much the same way, as the verbena; it comes from seeds and cuttings, but must ordinarily be treated as an annual. The seeds may be sown in shallow pans in a moderate heat in February or March, pricked off as they come on into four-inch pots, then potted into sixties, and shifted regularly till they bloom. During their growth they may be frequently stopped, and the points put in as cuttings; but as soon as the plants have flowered out, they may be flung away, unless seed is wanted, for it is folly to keep stock of old plants through the winter; they will worry you to death to keep them alive till January, and then, in spite of you, will perish.

To obviate the consequences attending the loss of old plants, the lover of the Petunia must depend upon young stuff. It may be worth while sometimes to make extra efforts to keep a few old plants over winter, when they have shewn fine qualities; but these are to be kept, not for a second blooming, but to take cuttings from in spring for striking in heat; and this plan of propagating specially applies to the sorts that are to be used for bedding.

For greenhouse culture, there is nothing like raising new stock in autumn. The young shoots strike easily in sand in a cold pit, and require no protection from bell-glasses, merely shading from the hot sun. Some folks keep them in the cutting-pots all winter, but fine plants are never produced in that way; they ought to be potted off as soon as rooted, shaded, and moderately watered till well established; and then consigned to a shelf near the glass in the greenhouse, and with two or three pottings in spring, and stopping every shoot at the third joint, magnificent plants may be produced to bloom the summer through. But if the cultivator has a fear as to their safe wintering, he may begin in February. The cuttings must be small side-shoots, put in in the usual way, and the pots plunged in bottom-heat and kept close for a short time; they soon root, and must then be potted off. Place them in heat again to give them a start, and as soon

as they begin to grow, top them, and put in the tops as cuttings. In the same way stop every shoot, and keep on shifting as the plants increase in size, but always guard against excess of Too dry rather than too wet is the rule for growing Petunias. As they get established, light and air must be given freely, and but little heat will be needed as spring advances. As they become bushy peg them out; if this is neglected, they will grow towards the centre, and will soon be ruined. again, and continue stopping at the third joint, and as they begin to shew bloom, water occasionally with weak liquid manure. On no account let them suffer for want of pegging down and tving out: there is nothing more slovenly than to let plants "grow any how," till they are past trimming, and then to put them in order by forcing their shoots this way and that. They must be kept open and orderly at every stage, and the light will have free play on every stem, and every part of a stem, and your reward will be seen when blooming-time comes.

By this plan you may make successional shifts, starting with three-inch pots and ending with eight-inch, and by the middle of May or beginning of June your plants ought to measure three feet in diameter, and eighteen inches high, with fine foliage down to the pot, and abundance of bloom from head to foot, superb specimens of floricultural art. As they open they should be placed in saucers, kept constantly full of liquid manure, for then you have nothing to fear in giving them abundance of moisture. A light sprinkling over the foliage in the morning will do them good, and if you mean to exhibit, you ought to pinch off every bloom till within ten days of the exhibition, giving plenty of air and sun meanwhile, and for the remainder of the period shading them during mid-day.

SELECT LIST OF PETUNIAS FOR POT-CULTURE.

Adolphe Hwass. Purple; very large.

Adolphe Weick. Rich velvety purple; semi-double.

Countess of Ellesmere, Bright rosy scarlet, with white eye.

Dr. Andry. Rose amaranth, bordered and striped white; also a good bedder.

Furst Von Schwarsburg. Violet purple throat, purplish red centre, margined with green.

Gloriosa. Very large; light peach, with deep green border.

Hermione, (Smith.) Blush white, regularly marked and spotted with bright purple; charming.

Imperialis. Double white; should be in every collection.

Imperatrice Eugenie. Rosy, striped white.

Lady Alice Peel. The best pot Petunia yet produced.

Little Nell, (Smith.) Rose and crimson striped; close compact habit, excellent also for bedding.

Madame Gloede. Carmine ground, much pencilled.

Majestic, (Turner.) Violet crimson, edged with deep rosy blush, and veined with purple; fine form and substance.

Major Domo, (Turner.) Rosy blush, rosy crimson centre, dark throat. Marquis de la Ferte. Rose peach; fine.

Marquis de St. Innocent. Beautifully striped, like a carnation.

Madame Eugenie Lemichez. Peach, edged with white,

Purpurea Alba, (Turner.) Purple ground, veined with crimson, and margined with white; splendid.

Shrubland White. Known at Sydenham as Royal White; good form and substance.

SELECTION OF THE FINEST PETUNIAS FOR BEDDING.

Crimson Perfection. Deep crimson, with dark throat; good substance.

Favourite. An improved Shrubland Rose.

Montreal Purple. Rich purple; good form and substance,

Prince Albert. Warm puce; used everywhere for bedding.

Purple Prince. Rosy purple; good substance and lasting.

Queen of the Whites, (Wynes, 1858.) Good substance, and lasting.

Queen of the Crimsons, (Wynes, 1858.) Bright and rich, and of excellent form and substance.

Shrubland Rose. Dark rose, white throat; still good, though beaten by

Springfield Purple. Deep velvety purple; large flower and good habit. Springfield Rival. Deep crimson; large flower, first-rate.

White Giant. A good white, but none of the whites can be conscientiously recommended for bedding.





THE CINERARIA.

This window-pet is a sort of companion to the Chinese primula; both come into bloom together, but the primulas are exhausted while the Cinerarias are yet in their prime. The Cineraria is one of the many high-class flowers which prove to be so nearly hardy, that everybody may cultivate them; and this is the reason why geraniums, calceolarias, fuchsias, genistas, pansies, auriculas, chrysanthemums, dahlias, and cinerarias, are the most popular of popular flowers.

I shall suppose that your Cinerarias have just done blooming. Those that were really good, save; those that were poor or only middling, throw away; for it is a waste of time to propagate anything of a second or third-rate character. As soon as your good plants begin to look shabby, cut off the flower-stems, and trim out any flower-buds that may be seen pushing from below; it would be a folly to let them bloom any longer, because the plants would be exhausted. Prepare a bed of coal-ashes in an open shady place, and on this bed range the pots containing the plants. If any offsets have risen and grown pretty strong, slip them off very neatly with a sharp knife, taking care that you have as much root as belongs to them, and then pile up round the stem of each of the old plants a little cone of fine sandy mould, the more sandy the better. Pot the offsets at once into small pots, water them, and place them in a cold frame, on a

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bed of ashes; shade them for a fortnight, and by that time they will be well rooted.

In the meantime the old plants will, from the base of the stem, put out fibres into the sandy soil that was piled round the collar of each, and numerous offsets will break through, each of which must be slipped off when possessed of two or more leaves, and potted as just described. In this way every good plant will give you from half a dozen to a dozen young ones, and you will have stock to start with. If the old plants are turned out into a border after flowering, they will be still more prolific of shoots and suckers.

When the offsets have been potted about three weeks, they will require shifting into pots a size larger, and though at the first potting any light fibrous sandy soil will do-and there ought to be plenty of sharp silver-sand mixed with it—at the next potting they must have a soil specially prepared for them, and this soil must be compounded thus:-Get some turfy loam from an upland pasture, some two-year old leaf-mould, and some fibrous peat. some very rotten cow-dung, some river-sand, and plenty of broken potsherds in various sizes, some being as small as peas. In making up the compost, use turfy loam two bushels, peat, leaf-mould, and cow-dung one bushel each, and half a bushel of sharp river-sand The compost must be well chopped up, and brought to a friable condition, in fact, made as fine as it can be without sifting. Never sift your soils unless specially directed to do so; the practice has marred many a good man's work, who thought that fine flowers and fine soil were necessarily related to each other. From the time the plants have this second potting, they grow steadily, and must never get pot-bound. To know when to shift them, turn one out carefully, and ascertain the state of the roots: if they fill the pot, then the plant must have a pot a size larger, and so on till they get into eight-inch pots for blooming, but of that presently. Beware of one error common to beginners, never place a choice plant in a pot larger than it can fill in a few weeks; the secret of success is in the succession of shifts, one size larger each time, except in the case of such plants as do not bear shifting at all. very few of which are classed as "florists' flowers."

Another mode of raising young stock is by seed. This should

be sown during May and June, if purchased; and if raised at home from choice specimen plants, sow it the moment it is sufficiently ripe. The best way to sow it is to procure some shallow pans, fill them with fine light soil, water moderately, sprinkle the seed thinly on the surface, and just cover with silver-sand. In a cold pit they need no artificial heat. As soon as the seedlings have two or three leaves, prick them out into small pots, in a similar light soil, adding a little leaf-mould to nourish them; and as soon as they fill these small pots with roots, shift them to a size larger and use the compost just described. From this time seedlings and offsets need the same treatment. If the seed is really good, the seedling plants will make the finest show at blooming time—there is nothing like sowing seed if you want variety in florists' flowers. They come of all colours in endless profusion, and they have generally greater strength than plants propagated from offsets or cuttings.

By this time Jack Frost will be making an occasional morning call, and your Cinerarias must be prepared to pass through the winter safely. Though these plants are generally wintered in greenhouses, it should be borne in mind that they cannot stand any amount of heat; in fact, they winter best in a common cold frame, well banked up with litter or dry fern, to keep the frost from penetrating at the sides and ends. Give them a shift as they require it, using always plenty of drainage, and putting over the laver of broken pots some of the rougher parts of the compost, to prevent the soil from washing down and causing them to be water-logged. There are few things that root faster than the Cineraria, so you must keep a sharp look-out to give them more room as they require it. Every shift is a slight check that causes the plant to grow dwarf and compact, at the same time the additional root-room given strengthens the formation of the trusses of bloom, which should ultimately rise up in dense heads from close-growing, broad-leaved, healthy-looking plants. They are very brittle, and in potting must be handled tenderly, as every injury leads to a loss of sap, which deteriorates the plant and causes imperfect blooming.

When winter has fairly set in, every necessary precaution must be taken to prevent injury from frost. In severe weather the frames must be covered with mats night and day, and even litter or fern added to that, if the frost should be intense; for though they repudiate heat, they also flinch before frost, and once seriously attacked never recover. Every fine day give air and light, but rather than let frost into the frames, they may be kept covered up for a fortnight together; though, of course that is not advisable unless the case is desperate. By having the plants strong and healthy, and well aired up to the last moment, and then kept as dry and clean as possible, there will be little fear of losses through frost, if the precautions that we advise be adopted in time.

As soon as the first blush of spring calls vegetation to its seasonal renewal, bring your Cinerarias to the greenhouse, and give them a cool place very close to the glass. If you have no greenhouse let them remain in the frames, or bring the forwardest in-doors to complete their growth in the windows. Now the flower-stems will push rapidly from your healthy large-leaved plants. Those that want opening and supporting with sticks must be neatly banded; but if for exhibition, all such supports must be removed a day or two before the show, or your plants may be looked upon as cripples, and in fact show-flowers that need sticks usually are cripples. You have now only to wait, and the reward for your care will be worthy your acceptance. A good Cineraria should have a solid truss, the flowers touching each other, and forming one grand globular mass of intensely bright colour. Each individual flower should be nearly or quite circular, and the less the florets divide around the edge the better; in fact, a model flower should be as completely circular as a florin, with no visible indentations on the edge, the central disk measuring one-third of the entire diameter, and the colour, whatever it is, decided and brilliant. Even finely-coloured flowers are apt to come loose, and with deep divisions between the florets. We have yet to bring the Cineraria to the very perfect and unbroken circle that the florist demands of it.

A few words must be said as to the diseases and posts of this flower. The Cineraria is a soft-wooded plant, and like all others of that kind, is apt to "damp off," that is, to rot where the plant meets the surface of the mould. Silver-sand strewed on the

surface is a good preventive of damping; but the grand point is to give air and water judiciously—only as much of the latter as the plants really require,—it is the excess, causing coldness and stagnation of the sap, that causes "damping," which is a rare calamity in the stock of an assiduous grower.

Green fly is a very common pest of the Cineraria, the great preventive in this case is to grow the plants as hardy as possible, "coddled" plants being always most readily affected. Tobacco smoke soon settles the fly, but any excess of it is a great injury to this succulent plant, which really has a poor power of resistance, on account of its moist absorbent nature—it has no woody fibre to fall back upon, and hence, though comparatively hardy, will not bear with impunity any extremes of treatment, or any very violent attacks of its enemies.

LIST OF TWELVE FIRST-CLASS SHOW CINERARIAS.

- Brilliant, (Lidgard.)—White ground, light azure blue edge, dark centre.
- Conspicua, (Wheeler.)—Pure white ground, broadly margined with rosy purple; dwarf habit, and fine trusses.
- Earl of Clarendon, (Turner.)—Deep violet ground with red ring round a dark disk; very superior.
- Emperor of the French, (Turner.)—White ground, broad rosy crimson margin, dark disk, large flower, and finely-formed truss.
- Excelsior, (Turner.)—Clear pearl white ground, margined with violet; an improved Scottish chieftain.
- Exquisite, (Dobson.)—Pure white ground, margined with rosy crimson, dark disk; fit for an exhibition stage anywhere.
- Fascination, (Henderson.)—Deep blue, with distinct white circle round a blue disk.
- Magnum Bonum, (Turner.)—Bright rosy purple, with white ring surrounding a black disk; a grand variety.
- Miss Labouchere, (Bousie.)—White ground, with narrow margin of rosy lilac; chargeting.
- Optima, (Bousie.)—White ground, with a broad deep blue edge, and disk of same colour; one of the finest for exhibition.
- Picturata, (Henderson.)—Clear white ground, margined with rosy purple, layender disk.
- Sir Charles Napier, (Turner.)—Rich blue self, dark disk; fine form and substance.





